COMPREHENSIVE PLAN

CITY • OF • SAN • BUENAVENTURA

Department of Community
Development • Planning Division

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CITY OF SAN BUENAVENTURA

COMPREHENSIVE PLAN

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CITY OF SAN BUENAVENTURA

GOALS

Approved by the City Council September 18, 1972

A. ECONOMIC BASE

1. Attain a balance of income-producing activities which will provide all residents with a variety of employment and investment opportunities.
2. Eliminate unemployment.
3. Plan the economic growth of San Buenaventura.
4. Create a visually pleasing city that is compatible with the optimum environmental values of residents and the needs of visitors.
5. Maintain agriculture as an important part of the economic open space within the sphere of influence of San Buenaventura.

B. POPULATION

6. Control population growth as a function of the preservation of the economic, social, cultural and physical amenities of San Buenaventura, keeping in mind the carrying capacity of the air basin and the water and land resources.

C. TAX BASE

7. Encourage the development of an equitable method of taxation and zoning that will ensure the retention of areas appropriate for conservation.
8. Encourage the diversification of the local tax base.
9. Ensure that each proposed development is beneficial to the community.

D. HOUSING

10. Ensure that every resident of San Buenaventura has the opportunity to obtain adequate housing and is not subjected to segregation by area, regardless of age, social, ethnic, or economic factors.
11. Provide a choice of housing types and neighborhoods for all residents, whether renters or owners.

E. PARKS AND RECREATION

12. Provide a variety of recreational opportunities for both residents and visitors, with particular concern for the needs of the youth and the elderly.
13. Acquire and/or preserve land for future parks and open space, including agricultural land.

F. EDUCATION

14. Provide educational services that will enable all individuals to attain their potential capacities.

15. Upgrade and equalize the physical plants of all existing school facilities and build new schools on appropriate sites which will eliminate overcrowding.

G. PUBLIC SAFETY

16. Eliminate crime and uncontrolled fire.

17. Maintain a safe environment by permitting only appropriate development in locations subject to natural occurrences which pose serious potential hazards to life and property.

18. Periodically up-date emergency facilities and provisions for public safety in the event of fire, earthquakes or other disasters.

H. HEALTH

19. Ensure that all citizens are provided a comprehensive health system that emphasizes prevention and early detection treatment of physical and mental health problems.

20. Maintain a healthful environment by intensifying local and regional efforts towards preventing and correcting all forms and levels of pollution.

I. CULTURAL AMENITIES

21. Encourage ethnic and cultural activities of all types in all areas and segments of the community with maximum cooperative use of public facilities.

22. Promote San Buenaventura's historical past and preserve its historically significant structures and landmarks.

J. URBAN FORM

23. Regulate San Buenaventura's horizontal and vertical expansion to ensure preservation of existing scenic views, natural topography and natural physical amenities.

24. Preserve open space lands as a desirable means to shape San Buenaventura's form and size and to serve the residents' needs.

25. Encourage orderly growth and development in San Buenaventura particularly vacant and unproductive properties already within the City Limits.

26. Annex unicorporated enclaves and adjoining existing urban areas.

27. Assure that all neighborhoods have conveniently located parks, schools, and other appropriate urban services.

28. Establish optimum City boundaries.

K. CONSERVATION AND NATURAL RESOURCES

29. Conserve all natural resources in the urban area in a manner that will ensure availability for continued use and enjoyment by the public.

30. Assure that any development of the coastal zone shall preserve and maintain the natural assets of the shoreline.

31. Assure an adequate supply of water and improve the present quality of water in view of San Buenaventura's needs.

32. Ensure proper treatment and/or recycling of all waste materials.

L. AESTHETICS

33. Revitalize existing developed areas within San Buenaventura which are deteriorated with particular emphasis on conservation and rehabilitation.

M. SOCIAL NEEDS

34. Establish community pride through building a city in which people may live in harmony with nature and themselves.

35. Eliminate drug and alcohol abuse.

36. Encourage day care centers with appropriate staff, facilities and location to serve the needs of working parents and their children.

N. TRANSPORTATION

37. Create an integrated transportation system for San Buenaventura which is safe, convenient and environmentally sound.

O. GOVERNMENT

38. Utilize local, regional, state and federal resources to assist San Buenaventura in attaining its stated goals.

INTRODUCTION

The various elements of the Comprehensive Plan for the City of San Buenaventura were adopted by the City Council over a period of several years beginning in 1974. This Plan was developed through the considerable efforts of the Comprehensive Plan Advisory Committee, a citizens advisory group, in conjunction with the Planning Commission and the City Council.

At the time that the plan was adopted in the 1970s, there were nine elements mandated by State law: Land Use, Circulation, Seismic Safety, Safety, Noise, Open Space, Housing, Conservation, and Scenic Highways. The City combined the Open Space and Conservation Elements into one element and also consolidated the Seismic Safety and Safety Elements into one element. In 1984, State law removed Scenic Highways from the "mandated" list and formally stated that the Seismic Safety Element could be assimilated into the Safety Element, which left seven mandated elements. Optional elements may also be included in a City's Comprehensive Plan, such as the Parks and Recreation Element adopted by the City in 1979.

The elements contained in the City of San Buenaventura's Comprehensive Plan are the following: Open Space and Conservation, Land Use, Circulation, Housing, Noise, Seismic Safety and Safety, Scenic Highways, and Parks and Recreation.

Because the Comprehensive Plan is intended to be a policy document which is responsive to the changing conditions and needs of a community, an amendment procedure was defined and adopted by the City Council. This procedure permits periodic review and evaluation of amendment requests and is described in Section IX of this document. The last section of this Plan is a compilation of official maps adopted by the City Council as they pertain to the Plan.

Copies of the total document, or of individual elements, may be obtained by contacting the City of San Buenaventura Department of Community Development, Planning Division, 501 Poli Street, Ventura, California 93001.

January 1986
Plan6/lm

OPEN SPACE & CONSERVATION ELEMENT

SECTION 1

OPEN SPACE AND CONSERVATION ELEMENT

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OPEN SPACE AND CONSERVATION ELEMENT

INTRODUCTION

The City Council adopted the Open Space and Conservation element November 18, 1974. In addition to the traditional issues of open space and agricultural preservation, and identifying parks and recreation sites, the Element also addresses a variety of other issues. Its adoption has established a firm commitment to initiate numerous programs which include:

1. Hillside Management Program
2. Flood Plain Management
3. Greenbelt Areas
4. Agricultural Use
5. Phasing Program
6. Linear Park System

Several of the above programs have already been addressed by the City and are contained within other elements in this document.

OPEN SPACE AND CONSERVATION POLICIES

OBJECTIVES

Objective No. 1

To adopt, as a part of the Open Space Element, the Open Space Map which will serve as a guide for the Urban Development of the City of San Buenaventura...

Explanation: The Open Space Map includes the following categories:

Existing Public Open Space
Hillside Area
Flood Plain Area
Greenbelt Area
Agricultural Use (to be reconsidered after 1990)
Phased Urban
Existing Urban
Linear Park Network
Major Park Acquisition

Objective No. 2

To develop a Hillside Ordinance which relates the number and distribution of dwelling units to the topographical, geological, and hydrological conditions of the hillside so that the terrain will retain its natural and scenic character and the danger of life and property by the hazards of fire, flood, water pollution, soil erosion and land slippage will be minimized.

Hillside Area:

The Hillside Area represents those undeveloped lands within the planning area which meet the following criteria: (Each specific parcel of land in the Hillside Area need not meet all the criteria to be placed in this general category.)

- Are at a slope of 25% or greater
- Are in a landslide risk area
- Are in a fire hazard area
- Are on the periphery of present urbanization
- Lack one or more basic utilities
- Lack an internal circulation system
- Remaining in open space will not adversely affect the public safety or welfare
- Have a unique scenic beauty
- Have a viable alternative to urbanization

Explanation: Before any extensive hillside development is permitted, the City should:

- Have professional geological and hydrological studies carried out to determine the effects of hillside building. Some of this data is already available and this data will be studied more thoroughly in conjunction with the development of the Hillside Ordinance.

- The City should also designate the most scenic areas of the hillsides to protect the views to and from the hillsides and the natural scenic areas which should be retained in their natural state.

- The City should fully evaluate all costs including flood control, water, fire protection, etc..., which may be necessary to service new hillside developments.

The Hillside classification applies to the Northern half of the City's sphere of influence until more detailed information on this area is gathered and analyzed.

(Please see Hillside Management Program in Land Use Element - Section II)

Objective No. 3 - To develop a Flood Plain Ordinance by July 1975...

Flood Plain Area:

The Flood Plain Area represents those undeveloped lands within the planning area which meet the following criteria:

- Are in the Standard Project Flood Plain
- Are on the periphery of present urbanization
- Lack one or more basic utilities
- Lack an internal circulation system
- Remaining in open space will not adversely affect the public safety or welfare
- Have a unique scenic beauty
- Have a viable alternative to urbanization

Explanation: The Flood Plain Ordinance's main purpose shall be to reduce the need for flood protection improvements, reduce public expenditures, provide open space, and protect the natural attributes and wildlife of the Ventura and Santa Clara Rivers.

Objective No. 4

To reaffirm the Greenbelt Policy between Santa Paula and San Buenaventura by asking for a reaffirmation of policy commitments from Santa Paula City Council, Ventura County Planning Commission, Ventura

County Board of Supervisors and the Local Agency Formation Commission in July 1975, and thenceforth to review every two years.

Greenbelt Areas:

The Greenbelt Area represents those lands within the planning area which meet the following criteria:

- Are between the Franklin Barranca and the Adams Barranca which establishes a green belt between Santa Paula and San Buenaventura
- Are on the periphery of present urbanization
- Lack an internal circulation system
- Lack one or more basic utilities
- Remaining in open space will not adversely affect the public safety or welfare
- Have a unique scenic beauty
- Have a viable alternative to urbanization

Explanation: The City should take the necessary steps to have the above bodies review and adopt policies so as to preserve the San Buenaventura-Santa Paula Greenbelt. The City of Santa Paula, the City of San Buenaventura, the Ventura Board of Supervisors, and LAFCO adopted a supporting resolution in 1973.

Objective No. 4A - Agricultural Use

To establish an official non-annexation and de-annexation policy of the City of San Buenaventura for those lands designated as Agricultural Use on the Open Space Map:

Explanation: There are a number of compelling reasons to preserve agriculture within the City of San Buenaventura's sphere of influence.

- City approved goals
- Conformance with the Adopted Ventura County Open Space Plan
- Fulfill the mandate of the State Constitution and the State Legislature
- Provide an efficient and economic Urban Form for the City.

(Please see Land Use Element - Section II)

Objective No. 4B - Phased Urban

To develop, within the Land Use Element, a phasing program whereby certain lands within the Phased-Urban category will not be allowed to develop until either a certain time in the future or after lands more

appropriate for urbanization have developed. The program will take into consideration the preferences of those property owners who wish to remain in agricultural production.

Explanation: "Phased Urban" refers to those areas slated for eventual development under a phasing plan to be set forth in the Land Use Element. The City, by adopting such a program, recognizes the need for the orderly growth of its urban form so as to utilize all of its resources in the most efficient and economic manner. The criteria formed to determine which areas will develop first will be directed at the objective of providing an Urban Design that is efficient and economic, as well as, aesthetically pleasing.

(Please see Phasing Program in Land Use Element - Section II).

Objective No. 5

To create an urban environment design suited for each neighborhood along the "defensible space" concept, which will be reflected upon the official Land Use Map of the City of San Buenaventura Comprehensive Plan.

Explanation: Defensible space refers to a concept of urban design which, when utilized by the City, will provide each neighborhood with a strong sense of identity. Studies relative to the implementation of such a concept have even indicated a decrease in the incidence of crime within such a community.

Objective No. 6

To investigate the feasibility, design and cost of "scenic approaches" to the City of San Buenaventura...

Explanation: The creation of "scenic approaches to San Buenaventura," which inform even the casual traveler of the identity of our City, (whether arriving from the West and the Rincon, from the North and Ojai, from the Northeast and Santa Paula or from the Southeast and Oxnard), merits a special study which should be undertaken by staff with the cooperation of the Greater Ventura Chamber of Commerce Tourist Bureau...

(Please see Scenic Highways Element - Section V).

Objective No. 7

To utilize Pre-Zoning as a tool for assigning Hillside, Flood Plain and other classifications to lands so designated on the Open Space Map.

Explanation: In order to ensure appropriate implementation of the Open Space and Conservation Element, the City of San Buenaventura Planning Commission, City Council and staff should anticipate time and cost factors necessary for legal proceedings following the adoption of the Open Space and Conservation Element by the City Council which include the need to develop Open Space Zones and the implementation of a Pre-Zoning process.

Objective No. 8

To utilize the Land Conservation Act within the incorporated and unincorporated portions of San Buenaventura's sphere of influence. The policy would become effective upon the adoption of the Open Space and Conservation Element.

Explanation: Further study is needed in order to better determine whether the City should set up a contract procedure or to continue to let the County handle this matter. In the interim, the City should encourage the formation of Land Conservation Acts in its sphere of influence that are consistent with the Open Space Element and subsequent Land Use Element Commitments.

Objective No. 9

To continue to establish a linear park network as proposed on the Open Space Concept Map through appropriate dedications, improvements, and/or acquisitions as an official policy of the Open Space and Conservation Element in conjunction with new development proposals.

Linear Park Network:

Urban Open space is under increasing pressure. Providing it, conserving it, and using it wisely increase in importance as development intensifies and spreads and land costs increase. A linear park network, intended to connect major public, quasi-public and private open spaces must become a central coordinating element in planning; not something happening occasionally and in patches, but a sustained and purposeful program.

Explanation: At present, parks within the Planning Area may be described as a random satellite system. In order to provide a healthy balance of urban and open space uses, as well as to provide riding, hiking and bicycle trails, it is proposed that a network of open space linkages interconnect various major open space areas and activity centers as phased urban lands develop. Where appropriate, not only will land dedication be required as development occurs but also suitable improvements.

Objective No. 10

To create a scenic, functional and recreational bicycle network throughout San Buenaventura as an important part of the linear park and circulation systems by requiring appropriate dedications and improvements in conjunction with subsequent development approvals and within present budget limitations.

Explanation: In order to assure that the community's bicyclists receive the attention which they deserve, it is recommended that the policy of bikeway and bike path improvements be considered for development in all new park lands and in conjunction with all subsequent development approvals.

Objective No. 11

To develop improvements within the Harmon Barranca for public use between Barranca Vista Park and Telephone Road...

Explanation: This development is intended to be a linear park project which will enlist the cooperation and a financial commitment of the Ventura County Flood Control District and the City of San Buenaventura Parks and Recreation Department.

Objective No. 12

To develop a portion of the Southern California Edison Company utility right-of-way for public use at a cost of not more than $20,000.

Explanation: This development is intended to be a linear park pilot project and will enlist the cooperation of the Southern California Edison Company and a financial commitment of the City of San Buenaventura Parks and Recreation Department. Cities throughout the State have taken advantage of a Southern California Edison Company policy which permits public utilization of utility rights-of-way for recreational purposes. The municipalities desiring to enter into a contract of this nature must assume the responsibility of public safety. While the Open Space Map envisions public use of the entire utility right-of-way, which extends through the heart of the Planning Area, it is proposed that only a segment of this right-of-way be developed within the immediate future.

Objective No. 13

To incorporate the concept of the Greater Ventura Chamber of Commerce Beach Beautification and Improvement Plan into the City of San Buenaventura's Linear Park Network.

Explanation: Our beaches are valuable resources and should be treated as such. The beautification of the beaches will not only add to their natural attributes, but will also increase their recreational potential.

Objective No. 14

To encourage the County of Ventura Parks Department to amend their Parks General Plan to conform to our Open Space and Conservation Element and to include the identification of a Regional Park within the City's Planning Area.

Major Park Acquisitions:

Research and analysis of available data indicates the following: (1) that development within the Phased Urban Areas will justify substantial acquisition of land for future public park and recreational needs, (2) that due to the rural-urban pattern of land use within the Planning Area, a unique opportunity is presently available for future open space planning in the City of San Buenaventura, (3) that the time to purchase land for future parks is within the next few years, not only because the cost of land will undoubtedly rise rapidly, but also because as developments continue to occur the opportunity for a truly outstanding park network will diminish. An advantage to public acquisition of large acreage of undeveloped lands may be realized by the potential to lease-back portions of these public properties for agricultural activity until such time as the increased recreational facilities are needed. It is recommended that this objective be acknowledged as part of the City's five year Capital Improvements Program or a subsequent Bond Issue.

Explanation: The County of Ventura General Plan for Parks, adopted in 1968, proposes no new facilities within the City of San Buenaventura Planning Area. It is recommended that the County of Ventura re-evaluate its park facility responsibility to citizens residing in both the incorporated and unincorporated portions of the Planning Area.

Objective No. 15

To have the Parks and Recreation Department, in conjunction with the Planning Division, develop a Recreation Element, showing a comprehensive system of neighborhood parks and public sites including the "Beach Front" for recreation facilities in conjunction with the Land Use Element.

Explanation: Recreation is such an important part of modern living that staff feels a Recreation Element is justified. The development of the Recreation Element will

be done in conjunction with the Land Use Element and will be a part of the definition of neighborhood deficiencies, neighborhood park locations and the like.

(Please see Parks and Recreation Element - Section VIII)

Objective No. 16

To establish a comprehensive process which will ensure adequate public open space throughout the City of San Buenaventura, as non-urban lands in the Phased Urban areas are converted to urban uses. This objective would be completed as part of the Land Use Element of the Comprehensive Plan by April 1975.

Explanation: The City of San Buenaventura, at the present time, is utilizing a Parks and Recreation Facilities Tax for the purpose of purchasing and improving park lands. The tax is a levy of $70.00 for the first bedroom and $35.00 for each additional bedroom. The City is also investigating the possibility of utilizing the Quimby Act. This Act requires the developer of a residential subdivision to dedicate land for park purposes or provide in-lieu payments. The Quimby Act has certain limitations which must be carefully analyzed.

Objective 16 directs the City to investigate the feasibility and legality of requiring dedication or in-lieu payments (an expansion of the present tax) for public open space purposes from developers of all urbanizing land, including industrial and commercial developments. The staff intends to investigate all possible methods of taxation, dedication, and donation which would provide for public open space.

(Please see Parks and Recreation Element - Section VIII)

Objective No. 17

To develop and have adopted a set of policies within the City which will aid an agricultural property owner in minimizing the impact of urbanization on his agricultural property by April 1975.

Explanation: The Planning Staff, in the development of the Land Use Element, will investigate the problems associated with the impact of urbanization upon agricultural uses. The Land Use Element will list specific proposals to minimize this impact wherever possible. At this point, some of the problems identified include: vandalism, assessment practices, raising property taxes, water rates, drainage and street easements.

RESOLUTION NO. 74-130

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN BUENAVENTURA REVISING THE OPEN SPACE AND CONSERVATION ELEMENT OF THE GENERAL PLAN BY ADOPTING A NEW OPEN SPACE CONCEPT MAP

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has considered in public hearing the recommendation of the Comprehensive Plan Advisory Committee, the Planning Commission and the Parks and Recreation Commission on revision to the Open Space and Conservation Element of the General Plan, dated June 18, 1973, and has considered testimony from property owners and citizens of the City.

SECTION 2: The City Council hereby approves revision to the adopted Open Space and Conservation Element of the General Plan by adopting a new Open Space Concept Map, referred to as Plan D, as amended by Council, on file in the Office of the City Clerk.

Passed and adopted this 12th day of November, 1974.

Barbara J. Kam
City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was passed and adopted by the City Council of said City at an adjourned regular meeting thereof, held on the 12th day of November, 1974, by the following vote to wit:

AYES: Councilmen McWherter, Bozung, Ellison and Laufer.

NOES: Councilmen Kountz, Garrett and Eaton.

ABSENT: Councilmen None.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 13th day of November, 1974.

Barbara J. Kam
City Clerk

LAND USE ELEMENT

SECTION II

LAND USE ELEMENT

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LAND USE ELEMENT

INTRODUCTION

The Land Use Element was adopted by the City Council in 1976. This Element is intended to provide policies and criteria for all development in the City. Because the Element functions as the base for information and policies for development, it is composed of several sections.

Definitions and Policy Statements

The various land use definitions, including those for the coastal zone, are contained within this section. Along with the definitions are general policy statements which govern development City-wide.

Community Intent and Rationale Statements

In order to allow a more in-depth examination of existing setting, service deficiencies, and projected growth needs, a total of 18 communities were established City-wide. These communities are identified on the Future Land Use Map. The policies for development found within the discussion about each community are basic land development policies which may be further refined if the community is located in the Hillside Management Program area or if Coastal Zone or other governing policies are found to apply. Consequently, reference to other such policies may be made in some community statements.

Areas Outside City Boundaries

There are two major areas of County land which are located within the City's Sphere of Influence and which would, therefore, eventually be annexed to the City. In order to assure appropriate and orderly development of these two areas, specific development policies were devised and adopted by the City Council. These two areas are the North Avenue and Taylor Ranch/Ventura River Area.

Phasing Program

The City's Phasing Program was initiated in order to provide for timely and orderly development such that adequate capital improvements are in place while not jeopardizing the viability of agricultural land or the integrity of open space land. Each year, as part of the Annual Community Development Report, the City Council reevaluates the status of development and determines what areas of the City should be opened for development.

Hillside Management Program

The Hillside Management Program was established in 1978 in response to concerns that the City's valuable hillside areas should be safeguarded both aesthetically and physically by minimizing the effects of development. The Program contains specific standards which provide for access, drainage, density and site development.

Air Quality Management Program

In response to Ventura County's adopted Air Quality Management Plan (A.Q.M.P.), the City Council adopted population limits for the City based on the parameters and procedures contained within the City's A.Q.M.P. The parameters and procedures are in the form of the Project Evaluation Program which was adopted by the City Council via Resolution. The Program Guidelines serve as the basis for evaluating all residential project applications of more than four dwelling units; projects of four or fewer dwelling units are exempt from the Program.

SECTION A

LAND USE DESIGNATION DEFINITIONS AND POLICY STATEMENTS

The designated land uses on the Future Land Use Map indicate what future general uses are considered appropriate on the designated parcel of land. Future land use designations are not shown on existing urban lands that are considered to be already developed with an appropriate use and/or are an integral part of the City's urban form. The allowable future land uses in each area designated as Existing Urban are set forth in the Intent and Rationale Statement for each community. In those instances where the existing urban uses are considered appropriate but the underlying zone is not, recommendations are made through the policy statements rather than through future land use designations. Future land uses in the Special Study Areas defined on the Phasing Map of the Land Use Element will be determined on a case-by-case basis until the special studies have been completed.

The following are the land uses designated on the Future Land Use Map:

DESIGNATION	SYMBOL	DENSITY
Single Family	SF	1-7 du/net acre
Multi-Family	MF	Range of densities (eg. MF-36 = max. 36 du/net acre)
Planned Residential	PR	Range of densities as follows:
Planned Residential	PR-8	6-12 du/net acre; average of 8 du/net acre
Planned Residential	PR-15	6-24 du/net acre; average of 15 du/net acre
Planned Residential	PR-20	6-36 du/net acre; average of 20 du/net acre
Transitional Residential	TR-15	15 units/net acre
Transitional Residential	TR-20	20 units/net acre
Hillside Single Family*	HSF-7	.1-7 du/net acre
Hillside Planned Residential	HPR	Range of densities as follows:
Hillside Planned Residential	HPR-4	.1-4 du/net acre
Hillside Planned Residential	HPR-8	.1-12 du/net acre; average of 8 du/net acre

*See Hillside Management Program (Section E) as this has superseded the HSF designation.

Hillside Planned Residential	HPR-20	.1-36 du/net acre; average of 8 du/net acre

Professional Office	PO	
General Commercial	C	
Planned Commercial	PC	
Planned Commercial-Tourist Oriented	PC-T	
Neighborhood Commercial Orientation	PC-N	
Harbor Commercial	HC	
Industrial	M	
Industrial Planned Development	PM	
Planned Mixed Use Development	PMXD	Variety of Densities and Uses
Institutional	I	
Agricultural 1990	AG 1990	
Linear Park		
Parks		
Recreation		
Flood Plain Overlay		
Sensitive Habitat Overlay		
Land Conservation Act	L.C.A.	

NOTE: An "H" suffix added to any of the above categories denotes an historical classification, indicating that the City wishes to preserve the historical character and significance of the area and/or property.

NOTE: HPR-20 (high density mix) permits a mix of medium-density attached dwellings and higher-density residential uses, such as garden apartments.

In applying the above land use designation to specific parcels, the following slope/density formulas shall apply:

Average Natural Slope (%)	HPR-20
0-5.00	15.00
5.01-10.00	12.50
10.01-15.00	10.00
15.01-20.00	7.50
20.01-25.00	5.00
25.01-30.00	2.50
30.01 or greater	.10

The following is a brief definition of each of the future land use categories. It is impossible to detail every specific use that would be permitted in each category or all the uses that would be prohibited. The main purpose of these definitions is to state the general intent and purpose of each of the categories and is applicable to the entire City unless the categories are specifically modified in a particular community.

Existing Urban:

Future land use designations are not shown on existing urban lands that are considered to be already developed with an appropriate use and/or are an integral part of the City's urban form. The allowable future land uses in each area designated as "Existing Urban" are set forth in the Intent and Rationale Statement for each community.

Residential:

There are three main divisions within the residential categories: SF, MF, and PR. The SF category represents the basic single-family unit and/or subdivision. Those lands which have the appropriate size and configuration for single-family development and which are predominantly surrounded by single-family development are so designated. Single family is considered to be traditional-sized lots (6,000 square feet) containing a single family dwelling which meets R-1 setbacks.

The MF represents a multiple-family residential use. The maximum density which can be developed on such a designated property is identified by the number following the letter symbol; i.e., MF-36 means a maximum of 36 dwelling units per net acre. This designation is indicated for those lands where future development does not require a review process that is entailed in the Planned Residential development designation, due to the fact that the character of the area should not be significantly affected by the development, existing parcel sizes are appropriate, and a completed circulation system already exists.

The final Residential category is the Planned Residential development, and it is intended that such designated land be developed in conjunction with a Master Plan (Preliminary Development Plan) which is prepared by the developers of the property and approved by the City. In instances where this designation covers contiguous parcels, all individual parcels should be included in the Master Planning effort. The Master Plan should detail site and street improvements, as well as the timing of the project. A Master Plan will be evaluated upon its adequacy in the following areas:

1. Open Space Ratio - Amount of open space (non-vehicular) to floor area.

2. Location of buildings so as to mitigate noise levels, achieve an aesthetic design, take advantage of and preserve natural amenities (trees, barrancas), orient properly to conserve energy and the like.

3. Adequate provision for pedestrians, bicycles and vehicular traffic.

4. Impact on adjoining land uses: (e.g., the need for setbacks, fences, landscape buffers, etc.)

5. Mitigate as much as possible all other adverse effects as outlined in either the City's Environmental Impact Report on the Land Use/Circulation Plan or the individual project EIR. This might mean special construction techniques in high geologic hazard areas.

6. Architectural character, landscaping and recreation amenities, parking and circulation, and the like.

In addition to the above conditions, the Planned Residential development will have to generally conform to the density designations in the Land Use Plan and Zoning Ordinance processing requirements.

The properties that have been given a PR designation have one or all of the following characteristics:

1. They are in strategic locations and development proposals must therefore, be well designed.

2. They need to be well buffered from surrounding uses.

3. They have incomplete circulation systems.

4. They have drainage system problems.

5. They could be impacted by existing or future noise.

6. They have unusual terrain and/or topography.

7. They provide an opportunity for imaginative housing solutions, perhaps including a variety of housing types in a single project.

The PR designation is intended to give the developer the ability to be flexible and creative, while at the same time give the City adequate control over the development of its limited residential land. The PR designation allows the developer and the City the opportunity for a well integrated design which is responsive to the unique locational and physical features of a site.

The TR category is intended for already developed areas which are redeveloping to a higher density. In many cases the already developed areas are characterized by small, narrow or irregularly shaped lots. In order to help ensure well planned developments with sufficient usable open space and off-street parking, all provisions of the applicable zoning, including setbacks, off-street parking and lot width, should be strictly adhered to.

Professional Office:

The intent of this category is to call attention to the fact that there are problems and opportunities associated with office uses that are different from those of the commercial category and, therefore, should be

treated differently. One such distinction is that a Professional Office is usually more compatible with residential uses than are most commercial establishments.

Commercial:

There are five categories of Commercial designations, "C" (General Commercial), "PC" (Planned Commercial), "PC-T" (Planned Commercial - Tourist Oriented), "PC-N" (Neighborhood Commercial), and "HC" (Harbor Commercial).

The General Commercial category includes central business areas, neighborhood shopping centers, and general commercial activity areas. Permitted uses in the General Commercial designation include convenience activities which serve day-to-day needs such as food, drugs, gasoline, and other incidentals, sales and services, retail and wholesale facilities which support agricultural, construction, and transportation activities and offices. Residential uses are also permitted in commercially designated areas; however, industrial uses are not appropriate.

The intent of Planned Commercial development, as with the other development categories, is to cause the designated property to be Master Planned and to provide the flexibility for and recognize the opportunity to encourage a variety of commercial and other related uses in a single complex. Such permitted commercial uses include sales and services, repair, retail, and office use. In some instances, residential development may be compatible with the commercial uses as long as the project as well designed and properly integrated. The PC designation may also allow industrial development so long as it is compatible with the overall design and purpose of the project.

The properties that have this designation have one or all of the following characteristics:

1. They are in a strategic location and development proposals must, therefore, be well designed.

2. They need to be well buffered from surrounding areas.

3. They front on a major thoroughfare.

4. They are highly visible from adopted scenic highway and/or street routes.

5. They need to dedicate land to complete the circulation system.

6. They are located within a major activity center.

The intent of the rest of the Planned Commercial categories, such as PC-T and PC-N, is to ensure that the City can preserve those sites best suited for specialized commercial activities (tourist commercial, neighborhood commercial) from encroachment by general commercial activities or other uses which are not as dependent on specific site locations. Each of the special PC categories has been created to serve a specific function for

either the City or a specific community. It is recognized that there are specific sites which can best accommodate these specialized commercial uses, that they are a limited resource and that they should be preserved for their highest and best use. The Harbor Commercial designation has the same purpose as the PC-N and PC-T categories.

Neighborhood convenience stores, defined as "a small retail outlet selling food and sundries", will be permitted on properties not designated for commercial use, providing there is no existing or proposed commercial center within a one-half mile radius of the site. A Conditional Use Permit (CUP) must be obtained from the Planning Commission for this use. The CUP shall cover such items as lot size, store size, parking, and on-and-off site circulation. The Architectural Review Board, when reviewing such projects, shall give special consideration to the signage, lighting, colors and materials of construction, and landscaping to ensure that the project is consistent with the character of the community.

The intent of the PC-T category is to protect sites that are suitable for tourist commercial uses from encroachment by other uses, including general commercial, industrial and private residential. A Planned Development Permit shall be required prior to developing such sites. Types of uses to be permitted in the PC-T designated sites include public or private developments that provide accommodations, food, and services, including hotels, motels, hostels, campgrounds, restaurants, and commercial-recreation development, such as shopping, gasoline stations, eating, and amusement areas for tourists.

It is the intent of this plan that vacation condominiums be designed to provide accommodations oriented primarily to the general tourist community rather than for exclusive residential purposes. For this reason, vacation condominiums shall be permitted only in commercially designated areas. Further, it is intended that all vacation condominiums be consistent with the provisions contained in 'City Council Resolution No. 81-68, adopting a Time Share Resorts Report and Interim Policy Resolution for the Regulation of Time Share Resort Facilities,' and that such resolution be incorporated in the Local Coastal Program.

Visitor-serving facilities such as overnight accommodations and restaurants, which are affordable to low and moderate income persons, provide an important coastal resource. In order to protect, encourage, and, where feasible, provide these facilities, the City shall:

1) Promote the continued operation of existing facilities (e.g., lower cost motels and restaurants) by not permitting incompatible uses to locate adjacent to such facilities. Specifically, the City shall not permit developments which, based on physical characteristics (e.g., height, open storage, etc.) or operational characteristics (e.g., noise, traffic, hours of operation, etc.) would have a deleterious effect on existing visitor-serving uses.

2) Encourage and coordinate with the Department of State Parks and Recreation in its endeavor to establish a hostel facility in or near the San Buenaventura coastal zone, if the State's experience with such hostels is shown to be successful.

Industrial Planned Development and Industrial:

The main intent of the Industrial Planned Development (PM) category is to require the preparation of a Master Plan, prior to the development of property, which is determined to be appropriate for large industrial park use. The Master Plan should define parcel size, circulation, architectural character, landscaping and the like, and such regulations should be included in covenants, conditions and restrictions (C.C. and R's) that should be prepared in conjunction with the submittal of a development proposal and recorded after its approval. It is intended that the Master Plan and the recorded C.C. and R's will provide for attractive and compatible individual developments within a well located and designed industrial park. In most cases, a PM Master Plan would be more general than a similar plan for a PR development in that it is not always possible to identify all of the ultimate industrial users when the project is initially proposed.

The Industrial (M) category is intended to accommodate those uses which, by their very nature (salvage yards, heavy manufacturing), have inherent problems relative to noise, dust, aesthetic appearance, and the like. The intent of this category is to provide a place for this type of industry within the City that is properly segregated from other non-compatible uses.

Planned Mixed Use Development:

The purpose of the Planned Mixed Use Development (PMXD) designation is to identify appropriate locations for and encourage:

- Large scale integrated developments having three or more major uses such as Professional Office, Commercial, Residential, Industrial, and various support facilities.

- Intensive use of urban land requiring major resource commitments over an extended period of time.

- Master Planned urban complexes that have a significant degree of functional and physical integration of project components (e.g., interconnection of uses with pedestrian ways, common mechanical support systems, etc. or different uses housed in the same building, sharing parking, recreation facilities, and the like.)

The Master Plan for such a complex should stipulate the architectural character, landscaping, overall circulation and parking and the like. The Master Plan, where appropriate, should also be made a part of the covenants, conditions and restrictions which are recorded relative to the property.

The PMXD designation has been placed on those lands which have one or all of the following characteristics:

1. They are in need of private and public redevelopment efforts.

2. They are large parcels of 40 acres or more.

3. They are in highly visible areas.

4. They are in close proximity to freeway and/or rail transportation corridors.

5. They can be developed in such a way that they are self-contained and well buffered from surrounding uses.

6. They are contained within and are an important part of existing or proposed major activity center.

The Planned Mixed Use Development concept has been gaining increased attention and implementation in the past two decades. It is considered to be one of the most exciting and exacting forms of land development today. Physically, these projects range from a vertical mixing of interrelated land uses in a single megastructure to a coordinated set of complimentary buildings, interconnected by pedestrian walkways and extending over 50 acres or more. The development concept has been used to revitalize downtown areas by introducing new office, retail, and residential facilities; for example, the concept of "new town, in town". The concept has also been used in the "new towns" that have been built on the periphery of existing urban areas. The PMXD category is further refined in each of the communities where such a designation is deemed appropriate.

Areas within the Coastal Zone which are designated "PMXD" include the Downtown and Mission Plaza Redevelopment Project areas, an area north of the Downtown Redevelopment Project area, and a lemon processing plant.

Adopted policies which provide greater land use specificity for these areas are hereby reaffirmed by the City and incorporated by reference into the Local Coastal Program. These include:

1) Downtown Redevelopment Project Area Plan.

2) Mission Plaza Redevelopment Area Plan.

3) General Plan policies which specifically address each of the PMXD areas outside the redevelopment project areas.

Institutional:

The Institutional (I) category recognizes already established and proposed uses such as churches, government facilities, hospitals, schools, etc.

Agricultural Use 1990:

The Agricultural Use 1990 category identifies those lands that are designated for agricultural use in the 1974 Open Space Plan, plus one additional property that is designated for a similar agricultural designation.

The target date of 1990, associated with the "Agricultural Use" designation, indicates a mandatory review date after which agriculturally designated lands may be reconsidered for urban uses. However, during the life of this plan, it is intended that agricultural uses are only permitted on these lands. Furthermore, the requirement to eventually update this plan is not intended to imply that development would necessarily be appropriate at this time. During such update, the agricultural policies contained in the Coastal Act shall be applied to any agricultural properties located within the coastal zone. Every lot shall have a minimum area of forty (40) acres. Where a lot was held under separate ownership or was of record as of February 7, 1977, said lot may be occupied by agricultural uses, but it shall not be subdivided or otherwise reduced in lot area.

Greenhouses and Similar Agricultural Buildings used for Crops and Flower Production:

Such uses may be permitted within an "Agricultural Use 1990" designated area subject to the following Greenhouse Development Performance Standards for Greenhouses and Similar Agricultural Buildings.

1) Landscaping shall be installed to visually screen structures and parking from the nearest public roadway.

2) Such development shall not be permitted if found to adversely impact water quality, water supply, or environmentally sensitive habitat areas.

3) Setback and lot coverage criteria shall be developed and incorporated into the agricultural zone designation of the Zoning Ordinance.

Greenhouse development or similar agricultural buildings may be permitted subject to a Conditional Use Permit. Prior to granting a CUP, the development must be found to be consistent with the above Development Performance Standards.

Linear Parks and Parks:

The Linear Park category defines approximately the same system that is adopted as part of the 1974 Open Space Plan. Some changes in the system are shown where it is felt that it is infeasible to complete one section or another of the originally proposed system.

The Parks category is defined as those lands which provide various outdoor recreational opportunities of a public nature and includes parksites, school open space, and recreational areas. Commercial uses which are subsidiary to or associated with public recreational facilities may

be permitted, provided they do not limit public recreational opportunities. In addition to these policies, it is intended that the appropriate Community Intent and Rationale Statements be consulted for specific policies which may relate to areas designated as Parks.

The specific locations of future Parks are not shown on the Future Land Use Map. Future Park commitments are dealt with through general policy statements and not through locational designations. It is intended, through these policies, that the Parks and Recreation Commission provide specific site selection recommendations to the City Council.

Recreation:

The Recreation category is defined as private lands which provide outdoor recreational opportunities and includes such uses as recreational vehicle parks, campgrounds, private golf courses, and horseback riding. Commercial uses which are subsidiary to or associated with private recreational facilities may be permitted provided they serve users of the recreational facility only (e.g., convenience grocery for recreational vehicle parks, pro shop).

Flood Plain Overlay:

The Flood Plain Overlay indicates a 100-year flood plain, which is the largest area inundated by the 100-year flood. Development which occurs within the flood plain may, however, be inundated more frequently, depending on the severity of flood conditions and the ground elevation.

Sensitive Habitat Overlay:

The Sensitive Habitat Overlay category identifies those areas that contain rare or especially valuable habitats which could easily be disturbed or degraded by human activities and developments; are important because of their existing or potential biological productivity; provide important educational values (e.g. scientific, research, nature study uses); or provide a buffer which protects sensitive habitat areas against encroaching development or disturbances. Included in this sensitive habitat definition are wetlands, dune vegetation, natural vegetation buffers, and riparian habitats.

Specific policies are contained in the Intent and Rationale Statements for each designated Sensitive Habitat Overlay area to address the individual resource protection needs. While the designation on the land use plan maps represents the best available information in terms of species and habitat areas, the designations are not definitive and may need modification in the future. Sensitive Habitat boundaries should be updated periodically to reflect changes in migration of species or discovery of new habitat areas.

Sensitive Habitat boundaries shown on the Future Land Use Map incorporate both habitat areas and buffer areas. Policies set forth for Sensitive Habitat areas shall also apply to designated buffer areas, except where specific buffer policies are provided.

B. Coastal Zone Definitions and Policies

Definitions:

Wetland:

"Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats and fens.

Estuaries:

An "estuary" is a coastal water body usually semi-enclosed by land, but which has open, partially obstructed, or intermittent exchange with the ocean and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above the open ocean by evaporation. In general, the boundary between "wetland" and "estuary" is the line of extreme low water.

Streams and Rivers:

A "stream" or a "river" is a natural watercourse as designated by a solid line or dash and three dots symbol shown on the United States Geological Survey Map most recently published, or any well-defined channel with distinguishable bed and bank that shows evidence of having contained flowing water as indicated by scour or deposit of rock, sand, gravel, soil, or debris.

Riparian Habitats:

A "riparian habitat" is an area of riparian vegetation. This vegetation is an association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other bodies of freshwater.

Open Coastal Waters and Coastal Waters:

The terms "open coastal waters" or "coastal waters" refer to the open ocean overlying the continental shelf and its associated coastline. Salinities exceed 30 parts per thousand with little or no dilution except opposite the mouth of estuaries.

Some portions of open coastal waters, generally areas without especially significant plant or animal life, may not be considered environmentally sensitive habitat areas. Environmentally sensitive habitat areas within open coastal waters may include "Areas of Special Biological Significance" as identified by the State Water Resources Control Board, habitats of rare or endangered plant and animal species, near shore reefs, rocky intertidal areas (such as tidepools), and kelp beds.

Policies:

Energy Policy:

Due to the built-up nature of the coastal zone, the City shall not permit the location of non-coastal dependent energy facilities within this boundary. In the event of relocation, the City shall require consolidation of existing oil storage facilities when a coastal location is necessary. Where a coastal location is not necessary, the City shall require such facilities to relocate outside the coastal zone, preferably in other existing storage areas.

Pipeline Policy:

1) Transshipment of crude oil through an on-shore pipeline for refining shall be a condition of approval for expansion of existing processing facilities or construction of new facilities.

2) Except for pipelines exempted from coastal development permits under Sections 30610(c) and (e) of the Coastal Act as defined by the State Coastal Commission's Interpretive Guidelines, a survey shall be conducted along the route of any pipeline in the coastal zone to determine what, if any, coastal resources may be impacted by construction and operation of a pipeline. The costs of this survey shall be borne by the applicant. This survey may be conducted as part of environmental review if an E.I.R. or C.N.D. (Conditional Negative Declaration) is required for a particular project.

3) When feasible, pipelines shall be routed to avoid important coastal resources, including recreation, sensitive habitats, and archaeological areas. Unavoidable routing through recreation, habitat or archaeological areas, or other areas of significant coastal resource value shall be done in a manner that minimizes the impacts of a spill, should it occur, by considering spill volumes, durations, and projected path. Where new liquid pipeline segments pass through sensitive resource areas, recreation areas or archaeological areas, the segment shall be isolated, in case of a break, by automatic shutoff valves or drip trays.

4) The City may determine whether spacing of automatic shutoff valves of intervals less than the maximum set by the Department of Transportation is required to protect sensitive coastal resources.

5) In sensitive habitat areas, the extent of construction and ground surface disturbance shall be reduced to a minimum by restricting construction activities and equipment with narrow, limited and staked work corridors and storage areas.

6) Upon completion of pipeline construction, the site shall be restored to the approximate previous grade and condition. All excavated materials shall be replaced in reverse order with top soil replaced at grade level and compacted, if necessary. All sites previously covered with native vegetation shall be reseeded with the same or recovered with the previously removed vegetative materials and shall include other measures as deemed necessary to prevent erosion until the vegetation can become established.

7) Geologic investigations shall be performed by a qualified geologist or engineering geologist where a proposed petroleum pipeline route crosses potential faulting zones, seismically active areas, or moderately high to high risk landslide areas. This report shall investigate the potential risk and recommend such mitigation measures as pipeline route line changes and/or engineering measures to help assure the integrity of the pipeline and minimize erosion, geological instability, and substantial alterations of the natural topography. New pipeline corridors should be consolidated with existing pipeline or electrical transmission corridors where feasible unless there are overriding technical constraints or significant social, aesthetic, environmental, or economic concerns.

8) All off-shore to on-shore pipelines should be located at existing pipeline landfall sites and should be buried from a point where wave action first causes significant bottom disturbance. In addition, landfall sites are prohibited from areas designated as 'Existing Urban' and which are zoned Residential, or shown as 'Sensitive Habitat Overlay' areas.

9) Construction of a major pipeline or pipelines is under consideration which would serve offshore oil development, most probably the west Santa Barbara Channel. This line could replace existing marine terminals.

   If an on-shore pipeline is determined technically and economically feasible, replacement of existing marine terminals shall be encouraged if it is found that existing storage capacity is no longer needed.

Public Works Policy:

During the update of the Local Coastal Program, the City shall re-examine the City's water supply and demand conditions to determine the adequacy of these supplies to accommodate future development within the coastal zone.

Hazards Policy:

New development shall be sited and designed to minimize risks to life and property in areas of high geologic, flood, and fire hazards. All new development will be evaluated in conjunction with the City's Seismic

Safety and Safety Element of the General Plan (March 1975), and for its impacts to and from geologic hazard (including seismic safety, landslides, expansive soils, subsidence, etc.), flood hazards, and fire hazards. Feasible mitigation measures shall be required where necessary.

Beach Erosion Policy:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff-retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Access to and along the shoreline shall be provided when such structures are constructed. In reviewing any such construction, relevant Coastal Act policies [Section 30253(1) and (2)] shall be applied.

If a revetment is constructed to protect existing residences in the Pierpont area, the revetment shall be evaluated and designed in a comprehensive manner and shall include within the design a lateral accessway (such as a bikeway/walkway) a minimum of five feet in width to mitigate the burden on public access caused by the construction of the revetment and the impact on public access along Shore Drive. Similar mitigation measures shall be included if protective devices are developed in front of the Fairgrounds. Lateral access shall be unimpeded along the beachfront of the Fairgrounds property.

Flood Plain Policy:

All new development, including construction, excavation and grading, except for flood control projects and non-structural agricultural uses, shall be prohibited in the floodway unless off-setting improvements are provided, such as minor reshaping of topography, where the net effect of such improvements does not reduce the cross-sectional area of the main channel and this overbank area, in accordance with HUD regulations. If the proposed development falls within the floodway fringe, development may be permitted, provided setback requirements are met and finish floor elevations are above the projected 100-year flood elevation, subject to any flood proofing criteria that may be established during preparation of City Flood Plain Ordinance. Permitted development shall not cause or contribute to flood hazards or lead to expenditure of public funds for flood control works, i.e., dams, stream channelization, etc.

With reference to the Hubbard property (Assessor's Parcel No. 60-320-28), the following specific policies shall apply (reference Map 4 Coastal Land Use Plan).

1. Main Channel Waterway - A change in topography by grading or use of this area for recreational vehicle parking shall not be allowed. This area must remain unobstructed to carry the 100-year flow and other more frequently occurring storms.

2. Flood way - Some minor amount of reshaping in this area may be allowed if the net effect does not reduce the cross sectional area of the main channel and the overbank area. Recreational vehicle parking may be allowed if a safe route of escape is provided for parked vehicles during high flood stages. However, no permanent improvements (above grade improvements) would be allowed. The westerly boundary of this area (westerly floodway line) will be subject to review and possible minor adjustment by the Ventura County Flood Control District. No active recreational uses in the sensitive habitat buffer in Ventura River shall be allowed. No permanent improvements in the buffer area shall be allowed.

3. Floodway Fringe - In this area, development may proceed with permanent improvements providing any flooding impacts are mitigated. This area may be totally filled or partially filled for a permanent improvement site. At the time of any future development, additional studies shall be conducted to determine any potential impacts to existing flood control and Caltrans improvements from the standard project flood. Secondary drainage facilities shall be designed to mitigate impacts on adjacent properties and facilities.

Archaeology and Paleontological Resource Policies:

All development, located within the coastal zone, for which CEQA clearance is required, shall be subject to the following:

1. An Environmental Assessment Form shall be filed pursuant to CEQA requirements.

2. The assessment shall be evaluated by the Environmental Impact Report Committee for possible archaeological impacts. If it is determined that the site may contain items of known or potential historic, archaeological or paleontological value, conditions shall be attached to the environmental documentation requiring investigation of the site.

3. Investigation of a site shall include one or more of the following methods, as determined to be appropriate in the Environmental Assessment:

   (a) Archaeological test excavations, including limited excavations designed and implemented by qualified archaeologists. If the test has positive results, a plan shall be prepared and implemented for the complete exploration of the site.

(b) One or more archaeologists or archaeological observers, as determined in the Environmental Assessment, shall be present during all excavation activity. If items of historic, archaeologic or paleontologic value are uncovered, work shall be halted for a period of time sufficient to assess, record, remove or preserve the items.

Diking, Dredging and Filling Policies:

A. The diking, filling or dredging of open coastal waters, wetlands, estuaries and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and, where feasible, mitigation measures have been provided to minimize adverse environmental effects and shall be limited to the following:

1) New or expanded port, energy and coastal-dependent industrial facilities, including commercial fishing facilities.

2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

3) In wetland areas only, entrance channels for new or expanded boat facilities; and in degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland; provided, however, that in no event shall the size of the wetland area used for such boating facility, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities be greater than 25% of the total wetland area to be restored.

4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boat facilities.

5) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers, and maintenance of existing intake and outfall lines.

6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

7) Restoration purposes.

8) Nature study, aquaculture, or similar resource-dependent activities.

B. Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

C. Where any dike and fill development is permitted in wetlands in conformity with this division, mitigation measures shall include, at a minimum, either acquisition of equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action; provided, however, that if no appropriate restoration site is available, an in-lieu fee sufficient to provide an area of equivalent productive value or surface areas shall be dedicated to an appropriate public agency, or such replacement site shall be purchased before the dike or fill development may proceed. Such mitigation measure shall not be required for temporary or short-term fill or diking; provided that a bond or other evidence of financial responsibility is provided to assure that restoration will be accomplished in the shortest feasible time.

Coastal Act policies contained in Public Resources Code Sections 30210 through 30607.1 are incorporated into the Comprehensive Plan.

Coastal Conservancy Application:

The following is intended to provide sufficient language to allow California Coastal Conservancy assistance in possible projects relative to agricultural preservation, coastal resource enhancement, and coastal restoration:

The LCP represents the commitment of the City of San Buenaventura to provide continuing protection and enhancement of its coastal resources. It is recognized that certain resource areas in this jurisdiction may require further public attention to ensure their protection and enhancement. Such resource areas include:

- degraded or less than pristine wetlands of any size such as the Alessandro Lagoon and the two rivermouth areas;

- lands that have a history or potential for productive agricultural uses such as the Ventura River area;

- sensitive coastal resource areas which are suffering some form of deterioration or development pressures;

- areas which are appropriate for well-designed visitor and recreation facilities like the Fairgrounds; and

- areas where unused and/or subdivided lots require consolidation or redesign to permit appropriate land uses.

COMMUNITY INTENT AND RATIONALE STATEMENTS

ARROYO VERDE COMMUNITY

Intent and Rationale for Land Use Designations:

General Character: The majority of the development in this Community is of the single-family residential type with a few scattered areas of higher-density. The dominant features of this Community are Ventura College and Arroyo Verde Park. With the exception of the Hillside area the Community is almost completely developed. The intent of the Land Use Plan is to preserve the stability and the character of this community.

Residential Uses: There are four residential designations in the Arroyo Verde Community. They are: SF, HSF-7*, HPR-8 and PR-15. The two large SF parcels south of Foothill Road reflect projects that are approved and have been or are being built. The other small, designated SF parcel south of Foothill Road, adjacent to the Arundell Barranca, is meant to encourage the completion of the already existing single-family development in the area.

The HSF-7 (Hillside Single-Family)* designation in the hillsides was meant to allow development to occur similar to that which has already taken place, whereas the HPR-8 (Hillside Planned Residential) designation is intended to encourage more creative design solutions in order to take advantage of the view potential and to permit the City a greater degree of control to protect the aesthetic qualities of the areas and mitigate against some of the problems that are inherent in hillside development.

The PR-15 designation on Ashwood Avenue is intended to provide an alternative in housing to the single-family dwellings which are in close proximity to Ventura College and Commercial facilities. The designation has also been placed on the existing mobile home park not so much as to cause the park to be a non-conforming use, but to identify the Land Use Policy which the City wishes to impose on that property so that the property, which is under County jurisdiction, would be properly zoned in the event that the mobile home park is phased out.

Professional Office:

The 0.94 acre site located on Loma Vista Road east of Ashwood Avenue is distinguished from other residential parcels along Loma Vista Road, between Mills Road and Victoria Avenue, by the surrounding uses, namely the institutional uses, including the multi-family uses directly to the south. Any office development shall be compatible with and complement the adjoining Dudley House. Such items as architectural style, location of amenities on the subject site, ingress/egress points and access between the subject parcel and the Dudley House shall be designed so as to provide the appearance of a unified development with the Dudley House. Any development must be reviewed through the Planned Development Review process.

*See Hillside Management Program (Section E) as this has superseded the HSF designation.

ARUNDELL COMMUNITY

Intent and Rationale for Land Use Designations:

General Character: The Arundell Community is well-served by highway and rail facilities, has a number of large parcels, and is free from fragmentation by existing commercial or residential uses. These factors alone make the Arundell Community one of the best suited for industrial development.

Commercial Uses: The only future commercial property in this Community is that which is designated Planned Commercial (PC) on the north side of Main Street. The intent of this designation is to change the use and visual character of the existing development, as well as controlling future development on vacant parcels. This area should be Master Planned so as to preclude a continuation of the strip commercial development that has occurred on Main Street and Thompson Boulevard. The purpose of the PC designation is to unify this area in as well designed a development pattern as is possible.

Industrial Planned Development Uses: The great majority of the remaining property in the Arundell Community is designated as Industrial Planned Development (PM). The intent of this designation is the same as that which is mentioned in the North Bank Community, namely, to assure that the Industrial, Corporate Office, and, in some instances, large single owner Commercial uses, are designed and landscaped in such a manner as to protect the scenic qualities of the area, relate well to one another, etc. An exception to this policy would be to allow certain heavy industrial uses (salvage yards, etc.) to be placed along the north side of the Southern Pacific Railroad as long as they are well screened and properly sited with respect to the balance of the proposed industrial development. The rationale behind this exception is the realization that the City must provide well segregated space for the necessary, though unsightly, industrial uses that each City must have in order to provide a balanced industrial environment. This area is isolated enough and if the uses are appropriately screened they should not adversely impact the City or the Community.

It is the intention of these policies that the City will encourage the formation of Land Conservation Act contracts in this area.

Industrial Uses: The Industrially (M) designated property in the Callens Road area is intended to serve the same purpose as expressed above, that is, the City should provide well segregated areas for industrial development which are necessary for the economic welfare and industrial balance of the City, even though certain Industrial uses may be of a "nuisance" type. It should also be noted that the existing mobile home parks in this area are designated for industrial uses. The intent here is to phase out the mobile home park because of its incompatibility with the existing and proposed character of the area.

A small triangular area southeasterly of the Dakota Drive residential tract is also designated "M." This property contains some oil storage tanks connected with the oil drilling activity in the hills to the east. Although the City's policy is to separate residential and industrial uses as far as possible, it is felt that in this particular case, because the storage tanks do not generate the noise, dust, odors and heavy traffic typically associated with industrial uses, the proximity of these industrial uses to residential development does not constitute a problem.

Note: The Avenue Community contains various hillside areas and, therefore, it is included in the Hillside Management Program.

AVENUE COMMUNITY

Intent and Rational for Land Use Designations:

General Character: The Avenue Community is characterized by a mix of residential, commercial, industrial and institutional uses. There is a large concentration of heavy industrial uses, which constitutes a significant percent of the City's employment base and economy. Housing in the Avenue Community tends to be older and contributes an important part of the City's supply of affordable rental and ownership housing. In some areas, there is a mix of incompatible uses, with residential, commercial and heavy industrial uses in close proximity. This factor has contributed to deterioration of the housing stock and the conversion of some older single-family neighborhoods to higher density, and has also clouded the redevelopment potential of the area.

The goals of the land use designations in the Community are: 1) to preserve existing affordable housing; 2) to provide for the continuation and expansion of heavy industrial uses in appropriate locations; 3) where feasible, to separate incompatible uses; and 4) to provide a neighborhood shopping center for Avenue residents.

Some of the property included within the plan is located within the City, some is located outside of the City. For parcels located within the City, references to "zoning" are to the current City zoning designation. For parcels located outside the City limits, such references are to the current County zoning designation. It is anticipated that these unincorporated islands will be annexed to the City.

Residential Uses: Residential areas were reviewed in terms of existing zoning, existing lot sizes and degree of conversion to higher density uses. Areas which remain at least 75% single-family were designated Single Family or TR-15 (duplex). They are generally areas with smaller single-family sized lots and R-2 zoning. Areas which are already nearly 50% converted to higher density were designated TR20. These areas correspond closely with existing larger lots and R-3 zoning.

Areas designated TR-20, and to a lesser extent TR-15, can then continue to convert to higher density, provided that the requirements of the applicable zoning, including setbacks, off-street parking, lot width and all others are met. Because these areas would be redeveloping on a lot-by-lot basis rather than by larger master-planned area, it is especially critical to maintain the zoning requirements. This should help ensure well planned developments with sufficient usable open space and off-street parking. Where possible, adjacent lots should be assembled to form wider lots.

The area west of Ventura Avenue, east of Olive Street, from Vince to the row of lots north of Ramona, is designated TR-15 in accordance with existing zoning. The remaining area, south of Ramona, and south of Vince and west of Olive, is designated TR-20, also in conformance with existing zoning. The intent is to allow private redevelopment in this area in conformance with all requirements of the applicable zoning.

The area east of Ventura Avenue has been designated TR-20, TR-15, and SF in conformance with existing zoning, development patterns and lot sizes. The TR-15 and TR-20 designations will allow redevelopment to higher density in conformance with the requirements of the applicable zone. The SF designations will preserve those areas as single-family neighborhoods.

Commercial Uses: The General Commercial (C) designation along both sides of Ventura Avenue is intended to reinforce the existing service commercial character of the area, while discouraging any further development of incompatible industrial uses. Existing zoning is generally consistent with this designation. The commercial zoning along both sides of Olive Street, between Vince and Ramona, reflects existing uses and zoning.

A neighborhood shopping center is planned to be located on the 12-acre site bounded by Main Street, Olive Street, Fix Way and Ventura Avenue. This project, which is currently under consideration by the Redevelopment Agency, should fill the need for a neighborhood shopping center in the Avenue area. For this reason, no area is designated for this type of use further north.

A relatively small service commercial center is developing easterly of Ventura Avenue at Dakota Drive. The C designation in this location is intended to permit this use to continue and expand.

Planned Mixed Use Development:

The area west of Ventura Avenue between Main Street and Park Row Avenue is designated as Planned Mixed Use Development with a historical designation (PMXD-H). This area, which currently has commercial and industrial zoning and has a mix of incompatible residential and non-residential uses, contains a portion of the Redevelopment Agency's Survey Area. A master plan for the area, which includes higher-density residential, service commercial, business and other compatible uses, has been developed through the Redevelopment Agency. However, the PMXD-H designation is intended to encourage as much private development of the area as possible, based on the master plan.

Industrial Uses: The area generally north of Vince Street, west of Ventura Avenue, is designated for General Industrial (M) uses. This designation is consistent with the Ventura Avenue Area General Plan and provides an area for continuation and expansion of heavy industrial uses. The location has good access to the Ojai Freeway and is relatively isolated from areas of concentrated residential development. A 250 ft. wide area easterly of Ventura Avenue, generally from Dakota Drive to 300 ft. northerly of Seneca Avenue, and from Dent Drive to Arapahoe Street, is also designated M.

The areas easterly of Ventura Avenue, between De Anza Junior High and Comstock Drive; northerly and southerly of Kellogg Street between Ventura Avenue and Cameron Street; easterly of Ventura Avenue, southerly of El Medio Street; and westerly of Riverside Street, easterly of the Southern Pacific Railroad tracts, are also designated "M". Industrial areas adjacent to sensitive uses will be subject to the Industrial Performance Standards to be incorporated into the Zoning Ordinance.

CAMINO REAL COMMUNITY

Intent and Rationale for the Land Use Designations

General Character: The Camino Real Community is essentially fully developed at this time, and is a stable area that should be preserved.

Residential Uses: There are two categories of Residential Uses being recommended for this area and they are: SF and PR-8. The small strip of SF land reflects an already approved project.

lhe PR-8 designation adjacent to Wake Forest Avenue also reflects a project already built.

The main intent of the "PC" designated land on the south side of Telegraph Road, westerly of the Arundell Barranca and across from Ventura College is to provide the area with limited neighborhood convenience commercial and office uses that can provide expanded services to the existing residential and institutional community. The following specific policies relate directly to the entire "PC" designated property:

1. The "PC" designated property is divided into two distinct sites. The westerly site is 7.35 acres and is located across from Ventura College beginning 150 feet easterly of Day Road. The easterly site is the 2.52 acre YMCA parcel located on the south side of Telegraph Road, westerly of the Arundell Barranca. Each site shall be master planned as an integral part of the initial Planned Development Permit for each site. In conjunction with the master plan, architectural development plans or criteria for the site, including all structures and the linear park along the southerly property line (Arundell Barranca), shall be submitted with the PD Permit, including specifications relating to building materials, roof slopes, elevations, landscaping, signage, and other requirements as may be deemed appropriate by the Planning Commission or Architectural Review Board.

2. Parcelization of the sites may be permitted only in conjunction with submission of the initial Planned Development Permit.

3. The maximum height of any structure shall be no greater than three stories above the Telegraph Road elevation.

4. Convenience neighborhood commercial uses shall not exceed 40% of the total gross floor area of the sites. Commercial uses shall primarily be for small, individual retail stores and personal services to the population that is located within a very short walking distance of the site, such as barber and beauty and other small shops. Automobile related uses, assemblage uses, outdoor storage, repair or sales yard uses, industrial type uses such as plumbing and printing shops or plants, and intensive

uses such as furniture, department, hardware or variety stores shall not be permitted. The following specific uses may be allowed:

Antique stores
Art studios
Bakeries
Banks and similar businesses
Barbershops
Beauty shops
Bird and pet shops
Bookstores
Confectionery stores
Delicatessens
Dressmaking shops
Drugstores
Dry goods and notions stores
Electrical and appliance repair stores
Florist shops
Fruit and vegetable stores
Grocery stores
Interior decorating establishments
Jewelry stores
Laundry and dry cleaning establishments
Meat markets
Millinery shops
Offices, business and professional
Radio and television retail sales and repair stores
Restaurant and cafes
Retail stores or businesses
Shoe repair shops
Stationery stores
Tailor shops
Wearing apparel stores

The following shall apply to the westerly 7.35 acres located across from Ventura College beginning 150 feet easterly of Day Road.

5. A maximum of two accessways to the site shall be permitted; one shall be aligned with Day Road and the other shall be so located so that if parcelization does occur, each resulting parcel shall have a portion of the access directly onto Telegraph Road. A median break on Telegraph Road in conjunction with a second access shall not be permitted.

The following shall apply to the property located on the south side Telegraph Road, westerly of the Arundell Barranca and 150 feet easterly of Day Road:

6. A maximum of two accessways to the site shall be permitted. No additional median breaks are permitted on Telegraph Road. Additionally, in order to unify any development on this site with the adjacent property, a mutual access easement shall be provided with the property to the west as a part of any PD permit.

7. A new building setback line from the Arundell Barranca shall be provided per the Flood Control District as part of any discretionary permits.

CATALINA COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Catalina Community is essentially developed, except for the hillside area. The Community has some characteristics of a transitional community, that is one which is undergoing or likely to experience change in character. The residential areas in the hillsides, though, are very stable due to the unique character of the area (view potential, established residential character, winding streets, etc.). The residential areas south of Main Street, however, do not enjoy all the unique assets of the hillsides (with the exception of Vista del Mar Drive) and due to varied zoning patterns within residential areas, the presence of strip commercial activity on Main Street and Thompson Boulevard, and varied conditions of both residential and commercial structures, there is greater pressure on changing the single-family character in some areas of the flatlands. In some instances this change has already occurred or is presently occurring. The community provides a mix of housing types, although in some cases, the mix has occurred in a piecemeal manner detrimental to the neighborhood character. The intent of this plan is to preserve the character of those areas that are predominantly single-family, and to stop the encroachment of strip commercial and multiple family development into the single-family areas.

Residential Uses: The only new residential use proposed for the Catalina Community is an HSF-7* designation in the hillside area adjacent to the San Jon Barranca. The intent of this designation is to allow the continuation of the single-family hillside development in the area.* In addition, existing multiple family zoning in the area bounded by Santa Barbara Street, and San Nicholas Street on the north, Hurst Street on the east, Santa Ynez Street on the south and Chrisman Avenue on the west should be changed from R-3-5 to R-1-7. (The area of this zone change should extend to the back lot lines of property facing the outer boundaries of the area described). The character in this area is still predominantly single-family and is well maintained. In accordance with recent demographic trends throughout the state and nation toward smaller families and early retirement, there is a growing market for the smaller detached homes such as those characteristic of this area. The City should make a concerted effort to protect this limited resource.

Commercial: The site designated for Commercial Planned Development (PC) on Alessandro Drive is presently zoned for Highway-Oriented Commercial. Due to the high visibility of this area and its location within a Scenic Approach Area of the City, the PC designation is more appropriate than the Highway Oriented Commercial zone in that the City will have more discretion relative to the character of the development through the Planned Development Permit process.

*See Hillside Management Program (Section E) as this has superseded the HSF designation.

Vista Del Mar Bluffs:

The intent of this plan is to preserve the Vista Del Mar bluff area in single-family residential use. To ensure this, the Vista Del Mar bluffs shall be redesignated from Existing Urban to Residential Single Family use and Planned Residential - 20. In addition, the existing multiple family zoning in the western portion of the bluff area shall be changed from R-3 to RPD-20.

This plan shall preserve the scenic qualities of the bluff area through such things as the preservation and provision of adequate landscaping, choice of construction materials, and use of low profile design; and ensure that new development does not contribute significantly to bluff instability. To accomplish this, new development in the Vista Del Mar bluff area shall be consistent with the following performance standards:

PERFORMANCE STANDARDS FOR DEVELOPMENT OF BLUFF AREAS:

1. New development which would require the construction of protective devices and that would substantially alter natural landforms along the bluff areas (e.g., retaining walls, exposed pilings and foundations, cut-and-fill slopes in excess of four feet) shall in no way be permitted.

2. Drainage shall be directed away from the bluff face.

3. Buildings shall be set back a sufficient distance from the bluff edge to be protected from bluff erosion for a minimum of 75 years. The City shall determine the required setback through use of a soils investigation provided by the proposed developer. A geologic report may also be required by the City in order to make this determination. This setback shall be a minimum of 25 feet from the top of the bluff slope.

4. In the PR-20 designated area, all new development shall be set back 25 feet from the top of the slope and shall not exceed 30 feet in height above average finished grade (AFG). No portion of the structure within the first 15 feet from the edge of the bluff setback (within 40 feet from the top of the slope) shall be more than one story in height (15 feet AFG). This standard is in addition to the above applicable performance standards which apply in the entire Vista Del Mar Bluff area.

Alessandro Lagoon (Sensitive Habitat Area): The intent of this plan is to preserve the wildlife habitat of Alessandro Lagoon, to protect the lagoon from further degradation, and to enhance its nature study opportunities. Specifically, Alessandro Lagoon shall be designated as a Sensitive Habitat area.

Development occurring in the Alessandro Lagoon Sensitive Habitat area shall be limited to nature study facilities (e.g., viewing areas, interpretive panels) and activities which would further the preservation of the Lagoon's wildlife habitat. To achieve this, the City shall encourage

implementation of the San Buenaventura State Beach General Plan, as adopted by State Department of Parks and Recreation, and coordinate with that agency to assure appropriate development. In addition, the small steeply sloping triangular area, which is owned by the City and across from Alessandro Lagoon, shall remain undeveloped.

Existing Urban:

Commercial/Thompson Boulevard Area. The existing urban designated area along Thompson Boulevard between San Jon Road and Santa Cruz Avenue shall preserve and protect existing visitor-serving facilities, specifically lower cost motels and eating establishments. If these facilities become economically infeasible to operate, priority for replacement shall be given to visitor-serving uses over general commercial uses.

Residential Area. The Catalina area between Thompson Boulevard and the railroad is developed with a mix of neighborhood commercial and residential uses, including single-family and multi-family units. The existing urban designation recognizes this area as a fully developed mixed-use residential and neighborhood commercial area that shall be protected as such.

Also found in the Catalina Community with existing urban designations in the Vista Del Mar area are the Pierpont Tennis Club adjacent to San Jon Road, and the City's water treatment facility adjacent to Seaward Avenue. Both facilities will remain as the future land uses.

DOWNTOWN COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The intent of the Land Use Plan for the Downtown Community is to capitalize on the unique physical setting of the area, situated between the Pacific Ocean and the foothills of the Coastal Range. The existing land use patterns in the Downtown area must be changed in order to eliminate existing problems. The heavy industrial uses that exist should be relocated to more appropriate sites, in order to create a desirable environment for the rejuvenation of existing residential areas and for new residential development, as well as tourist oriented and general commercial uses. Historically and architecturally significant buildings should also be preserved and refurbished so that the City may exploit these assets and maintain its link with the past. With the preservation of such resources and the elimination of land use conflicts, the Downtown could become a viable residential, commercial area once again. In order to call attention to the historical significance of the entire Downtown area, an "H" (Historical) overlay is attached to the Community, indicating that the consideration of historic resources is of major interest in land use changes and other City actions.

Residential Land Uses: There are two residential categories proposed for the Downtown Community. They are HPR-20 and MF-36. The HPR-20 designations are in the hillside area and are meant to provide for view apartments and/or condominiums.*

The MF-36 designation reflects existing development trends and zoning in the vicinity of Santa Clara Street and should encourage private redevelopment by allowing a relatively high-density of residential development to occur. It is the intent of this plan to increase the density in the Downtown, and simultaneously provide the necessary capital improvements to accommodate that increased residential population.

Commercial Uses: There are three commercial designations in the Downtown Community. They are C, PC and PC-T (General Commercial, Planned Commercial and Planned Commercial-Tourist-Oriented, respectively). The largest commercial area, bounded by Poli Street on the north, Palm Street on the west, the freeway on the south and Chestnut Street on the east, is now a large commercial area and has been designated as general commercial (C) in order to reinforce the intention of maintaining a viable Downtown commercial and business district. There are a number of mixed uses within this area and it is the intent of this plan to encourage this as a predominantly commercial area.

The area south of Thompson Boulevard, north of the Southern Pacific Railroad has been designated as General Commercial (C), recognizing that the M-1 Zone (Industrial) and associated uses existing in that area should be changed to reflect the desire for a commercially oriented Downtown rather than an industrial one. Front Street, which is located within this

*See Hillside Management program (Section E) as this has superseded the HSF designation.

area, has a very good potential for a commercial area and the expansion of industrial development in the area would detract from this potential. The general commercial area being designated along Main Street between Kalorama Street and Crimea Street is intended to allow the area to further develop in business and commercial enterprises while simultaneously putting a check on further encroachment into surrounding residential areas.

The PC-T designation on the property west of San Jon Road between the 101 Freeway and the railroad allows additional tourist-oriented uses on this site. However, if it is determined that such uses are not economically feasible, an amendment of this designation should be considered at a future date.

The marine terminal, located south of Harbor Boulevard, is designated as planned commercial - tourist-oriented in order to protect these oceanfront sites for recreational and visitor-serving commercial uses. The Ventura County Fairgrounds (also known as Seaside Park) is designated as Fairgrounds/Public Use. It is intended that this designation protect the public recreational nature of the Fairgrounds. Furthermore, it is intended that expansion or major renovation of the Fairgrounds be permitted as long as such uses are either associated with the Fair itself or are oriented to the general public.

The area between the Southern Pacific Railroad and the Ventura Freeway is designated as planned commercial (PC) in order to allow the City more adequate control of this strategic location, which is highly visible from the freeway.

Fairgrounds: In the event of expansion, major renovation, or partial redevelopment of the existing facility at its present site, the following policies shall apply:

Land Use Policies

The Fair Board shall be encouraged to preserve and enhance present recreational and visitor-serving uses, and make these facilities more accessible to the public throughout the year. New development shall be of a recreational or public use nature.

General Policies

A master plan shall be required prior to new development or major renovation which reflects existing and potential future development and includes the following criteria:

Oceanfront Corridor

1. No permanent development, other than for general public recreational purposes (e.g., bikeway), shall be permitted in the oceanfront corridor in order to preserve this area for possible expansion of future recreation uses. Such corridor shall be at least 250 feet in depth, as measured from the rock revetment and natural embankment, and shall be officially established through

a land survey following certification of the LCP. Non-permanent uses may be permitted in the oceanfront corridor which would not preclude or interfere with recreational facilities (e.g., bikeways). However, any recreational facilities, such as picnic tables, shall be located such that they do not interfere with non-permanent Fairground use of the oceanfront corridor.

2. Motorized vehicles shall be prohibited in the oceanfront corridor, except as may be needed for overflow parking during events held at the Fairgrounds throughout the year and for maintenance vehicles. Hard surfacing for parking purposes may be permitted only if such development does not preclude possible future recreational use.

3. A bicycle and hiking trail shall be permitted through the oceanfront corridor as planned by State Parks and Recreation.

4. Signs shall be posted adjacent to Ventura River alerting the public to the sensitive nature of the area and prohibiting motorized vehicles.

5. General public accessibility to the existing parking lot of the Fairgrounds shall be improved in order to enhance access to the surrounding recreation areas. Access between the lot and oceanfront corridor shall also be improved.

The following design criteria shall apply to any expansion or major renovation of the Fairgrounds:

Design Criteria

It is intended that any new development within the Fairgrounds be designed to project coastal views and be compatible with the overall character of the Downtown Community. Therefore, building heights shall not exceed three stories (45 feet), except that increased building heights may be permitted where necessary. Such height increases shall be permitted for auditorium or indoor or outdoor arena uses, only if they do not exceed six stories (75 feet) and are offset through the provision of substantial view corridors. A view corridor is defined as that area between the roadway and water which is not occupied by buildings or solid walls and fences that would impede the view of the water from Harbor Boulevard and is to be measured from the linear distance paralleling Harbor Boulevard.

All buildings outside the oceanfront corridor shall be set back a minimum of 20 feet from the corridor and a minimum of 100 feet from the river levee. Existing mature trees located within the Fairgrounds site shall not be removed except where they pose a safety hazard or when it is determined that their removal is necessary in keeping with good landscaping practices.

Planned Mixed Use Development: There are two adjoining areas in the Downtown which have been designated for planned mixed use development. Both PMXD designations are meant to encourage private redevelopment in the area, with emphasis on General and Tourist Commercial, Residential Development, and some Professional Office. The Residential Development should be of a high-density (PR-20 or greater). Light Industrial Development could be accommodated in the PMXD designated area which is located near the railroad and the freeway. The PMXD designated area which includes the San Buenaventura Mission area should be developed in accordance with the general themes outlined in the "Heritage Ventura Report".

All PMXD areas within the Downtown Community are presently being surveyed by the Redevelopment Agency to determine the feasibility and desirability of establishing a redevelopment and/or rehabilitation project over all or part of the area. The purpose of the project would be to develop a master plan for the area whereby private redevelopment and public redevelopment could work in a mutually beneficial manner. For example, private development cannot easily assemble irregular and small parcels (a feature of the area) to make economically developable sites, whereas the Redevelopment Agency could, through eminent domain procedures, accomplish such a task. Therefore, public redevelopment could be of a great aid to private development in the area.

It should be noted that there are already designated archaeological sites in the Downtown area and there is undoubtedly a potential for the discovery of additional sites. The private and public development in the area should be made to mitigate the effects of their development on these sites. Furthermore, the general historical flavor of the Downtown area should be preserved and in some instances restored through private and public development in the area, as indicated by the "H" (historical) overlay on the Downtown Community as commented previously.

Energy Facilities: It is intended that the existing marine terminal, located at the terminus of Figueroa Street, be permitted to operate as long as it is functional. If the existing operation should be terminated, the site shall revert to planned commercial - tourist-oriented use.

Existing Urban: The existing urban area generally bounded by Buena Vista Street, Laurel Street, Thompson Boulevard, and Chestnut Street is a mixed use area predominantly developed with commercial uses. The designation shall permit continued commercial development as well as compatible residential uses, which may include single-family and multi-family uses.

Multi-family uses are also found along Ventura Avenue north of Main Street and along the Promenade. These shall be maintained in residential uses.

The Southern Pacific Railroad yard is also found in the southeastern corner of the Downtown Community adjacent to the Catalina area. The uses found on this parcel are primarily industrial in nature and shall remain as such.

Peking Street-Avenue Community: The one block area along Peking Street contains older residential and industrial uses. Any future redevelopment shall be for industrial uses compatible with adjacent uses.

Front Street: The area located along East Front Street generally bounded by South Ash Street, San Jon Road, Thompson Blvd., and the Southern Pacific Railroad is a mixed use area containing residential, commercial, and industrial land uses. These land uses are appropriate for the area and shall remain.

Professional Office: There are five parcels generally located at the southeast corner of Kalorama Street and Santa Clara Street which are designated Professional Office (PO). The intent of the PO designation is to protect the single family and multi-family residential neighborhood to the north and east of the subject property and to protect and preserve, if possible, the historic character of the California bungalow style homes on Kalorama Street, while at the same time allowing for the continued and possibly expanded office uses already found on a portion of the subject property. The following specific policies relate to the California bungalow style homes along Kalorama Street:

1. If office development is proposed for any one of the four parcels along Kalorama Street, joint development shall be ensured through a "Master Plan" for all four parcels which provides for not more than one access/egress point on each Kalorama Street and Santa Clara Street and joint parking and access between the four parcels.

2. The California bungalow style buildings shall be retained and reused as office space unless at the time of a Change of Zone to Professional Office is requested, the owner/developer can demonstrate the infeasibility of such reuse. The intent of this policy is to preserve the historic character of the buildings while allowing for the adaptive reuse of the properties.

3. A Planned Development Permit shall be required for any new development or re-development on the subject property. Said Planned Development Permit application shall address the policies contained herein.

JUANAMARIA COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Juanamaria Community is primarily a low-density, single-family neighborhood, developed around a neighborhood commercial center and elementary school at the intersection of Telegraph Road and Kimball Road. Land use policies for this community are intended to maintain the residential neighborhood character of the community.

Residential Uses: With the exception of the neighborhood-commercial center at Telegraph Road and Kimball Road, all "phased urban" parcels in this community are designated for residential uses. Low density, single-family designations are denoted on those parcels that are surrounded primarily by existing single family developments and in those areas where they would act as a buffer to "Agricultural Use 1990" designated lands.

The SF designations on the two larger undeveloped parcels along Kimball Road north of Telegraph Road are based upon this rationale. In each case, they would allow for the extension of the existing character of the community. The 36-acre parcel west of Kimball Road and south of Foothill Road is adjacent to Harmon Barranca, and linear park open space should be integrated into the design of this development. The 68-acre parcel east of Kimball Road and north of Telegraph Road is surrounded by existing single-family developments while conveniently located to the community's existing services. While the realignment of Kimball Road at this site is discussed under Circulation Policies, consideration should be given to realigning Kimball Road, if possible, south of Telegraph Road so as to provide for an extension of the existing PC-N land west to the newly aligned Kimball Road.

A SF (single-family subdivision) designation is applied to a 45-acre parcel north of Telegraph Road and east of San Mateo Avenue. This parcel is a logical extension of the existing single-family tract to the west of it. The design of this subdivision should take into account its location adjacent to "Agricultural Use 1990" property. A 23-acre parcel north of the Santa Paula Freeway and west of Sudden Barranca is also designated for SF development. Again, single-family development of this parcel is a logical completion of existing single-family development which surrounds it on two sides, and includes four stub streets. In addition, a SF designation is shown for two small "home piece" properties located within existing single-family subdivisions, as well as a recently completed single-family development south of Telegraph Road and east of Banner Avenue.

The 45-acre parcel south of Telegraph Road and west of Kimball Road is designated PR-8 because it provides the best opportunity in the community for a mixed-density residential development. Lower-density development should be oriented toward existing single-family development on the western perimeter of the property (including the extension of "stub" streets from the existing subdivision), while higher-density development should be designed to mitigate access and noise problems on the eastern side of the property.

Two small parcels south of Telegraph Road, on either side of Cambria Avenue, are designated PR-20, as they are located adjacent to existing multiple family developments. The PR designation will require master planning of both parcels to mitigate noise and access problems along Telegraph Road. While the properties currently having a mix of multiple residential, professional office, and commercial zoning, the peripheral location of these parcels (bounded to the north and east by "Agricultural Use 1990" parcels) makes them inappropriate for commercial or office development at this time.

Commercial Uses: The existing neighborhood shopping center at Kimball Road and Telegraph Road has been designated as commercial planned development-neighborhood (PC-N). The shopping center property includes a large vacant area on the southern boundary, as well as a large existing parking lot. Future expansion or redevelopment of this center is designed to maintain its neighborhood-commercial orientation.

LOMA VISTA COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Loma Vista Community is characterized by a large concentration of regional medical facilities and related Professional Offices such as the Ventura County Medical Complex and the Community Memorial Hospital, several large medical clinics, and numerous small Professional Offices and related Commercial businesses. In the fringe areas bordering these medical facilities, many residential structures have been converted to Office Uses. One of the intentions of this plan is to provide for the expansion of Professional Office use in an appropriate area, while simultaneously preventing further encroachment in other parts of the Community.

Residential Uses: There are three residential designations in the Loma Vista Community, HSF-7* HPR-4 and PR-8. The intent of the HSF-7 (Hillside Single-Family) designation is to allow a continuation of the type of development that surrounds the Hilltop Drive area. The HPR-4 hillside designation covers a larger area and therefore must meet more stringent demands as to design criteria. The intent of the HPR-4 designation is to ensure the continuation of single-family development under a PD permit east of the Hilltop Drive area.

The PR-8 designation on the property at the northeast corner of Loma Vista Road and Mills Road will allow greater control of the design of the development proposed for the site so that this strategic location may be an asset to the City. The proposed density also fits in with the character of the area.

Professional Office Use: As was stated above, the main intent of this designation is to expand the opportunity to convert existing structures to a Professional Office Use so as to meet a growing demand primarily for medical facilities, while simultaneously containing encroachment in other areas of the community. The PO designated property at the northeast corner of Loma Vista Road and Mills Road is in a unique, highly visible, strategic position within the City. The intent of the plan for this site is to preserve the character of the existing neighborhood while making the use of this site an asset to the City as a whole. Development of the site shall be subject to the Planned Development Permit process, which shall limit the height to two stories or 30 feet and the building coverage to 35% so as to be compatible with the adjacent institutional and residential uses by not exceeding the limit established for these uses. In an effort to provide the most efficient means of access to the site, which is divided into two parcels, access should be limited to one driveway on Loma Vista Road near the easterly property line of the easterly parcel. In addition, mutual access agreements between the two parcels should be required, providing access across both to the private driveway on the westerly property line of the westerly parcel. If this arrangement cannot be worked out, each parcel shall have no more than one driveway on Loma Vista Road as may be approved in the Planned Development Permit.

Institutional Use: The intent of this designation is to recognize the need to expand the existing County Medical Complex.

*See Hillside Management Program (Section E) as this has superseded the HSF designation.

MONTALVO COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The intent of the Land Use Plan for the Montalvo Community is to provide for the proper integration of two distinct environments within the community; one of low-density residential development and another of mixed uses, such as commercial, high-density residential development, and the County Government complex. The possibility of a conflict between these different types of environments makes it imperative that there be an extensive use of buffers throughout the community either through extensive setbacks or through extensive landscaping, and that the master planning of large parcels be required in conjunction with the planning and provision of adequate public services.

Residential Land Uses: Three residential categories are proposed for the Montalvo Community: PR-20, PR-8 and SF. The Planned Residential (PR) designation is used to encourage greater creativity and flexibility in future development while simultaneously giving the City greater control over residential development of this type. The higher-density PR-20 designations are shown for properties which adjoin linear parks, are in close proximity to the County Government Center, or are or can be well buffered from existing single family development. Both properties designated PR-20 in the Montalvo Community have direct access to Telephone Road, which will be able to adequately handle greater volumes of traffic after the completion of the improvements being made through the Victoria Avenue and Telephone Road Assessment District. The rest of the designated residential development in the community is of a lower-density, specifically PR-8 and SF, which is intended to make the future development of such areas compatible with existing adjacent single-family residential development.

Commercial Uses: There is one area designated for commercial uses in the Montalvo Community. That area is on the east side of Victoria Avenue, extending from Moon Drive to the frontage road on the north side of the Ventura Freeway, and is designated Planned Commercial (PC). The City and County reached an agreement in 1973 that this area should eventually redevelop in that the existing single-family residential development is not appropriate and also agreed on some parameters as to how this area should redevelop, based on a joint study undertaken in 1972-3, known as the "Moon Drive Study". This study specifically speaks to how the small single-family parcels within this area could be assembled to properly accommodate a reuse of the land. At that time, it was considered appropriate to have Professional Office, Commercial Office, and Limited Commercial uses in the area. The study also proposed that properties not adjacent to Victoria Avenue be zoned for multiple development not to exceed 20 units per net residential acre. There were also a number of policies in regard to the dedication of rights-of-way for street widening, setback requirements, landscaping and buffering of the properties. The Moon Drive Study's policies dealing with commercial uses, rights-of-way for street widening, setback requirements, landscaping and buffering of the properties are still considered adequate to shape the redevelopment

effort in this area. This is particularly true in that there are numerous small lots and the area has taken a commercial character due to its freeway interchange location. For specific development policies and circulation for the Moon Drive Area see below.

Professional Office: One area, at the southeast corner of the Victoria Avenue-Telephone Road intersection, directly across from the proposed County Government Center, is designated specifically for Professional Office uses. This designation is intended to accommodate support facilities in close proximity to the Center.

Planned Mixed Use Development: There are two areas designated PMXD. One is the site directly east of the County Government Center. The main rationale for this designation is to encourage creative Professional Office, Commercial and Residential development which is integrated functionally and well related to the County Government Center. The development of this particular PMXD designated site should orient primarily to that of a Professional Office use and PR-20 Residential use. The Commercial uses incorporated in the PMXD should be designated solely for the purpose of providing support facilities to the County Government Center, to the Professional Office uses on site and to serve the higher density residential uses within the complex. The location of this PMXD designated site next to a segment of the linear park system provides an opportunity for the development to relate to an attractive and useful Open Space area, as well as provide a buffer between the freeway and the residential units.

The second area of PMXD designation is on the site directly east of the K-Mart Shopping Center adjacent to Victoria Avenue. The site is referred to as the Mound Property and is approximately 48 acres in area. The general character of development, as well as specific design of this site, shall be compatible with surrounding land uses, particularly the single family residential neighborhoods. An average density of 13 units per acre shall not be exceeded for the residential portions of the site. This is to assure compatibility with the adjacent existing single family neighborhoods and to mitigate potential traffic impacts. However, a density bonus of up to 25% for provision of affordable housing pursuant to AB-1151 (see Housing Element: "Housing Incentives Program") may be allowed, provided that all environmental impacts can be mitigated and all other General Plan policies and zoning regulations are met. Where development of this site abuts existing single family residences, comparable single family residences shall be provided on the subject site to act as a buffer. With regard to the commercial portion of the site, the actual ratios of office versus retail commercial usage at the site shall be specifically determined through further traffic analysis provided by the developer.

The overall site shall be designed to adequately mitigate visual and traffic impacts in order to assure compatibility with adjacent existing single family neighborhoods. The overall circulation pattern shall be designed so as to minimize vehicular traffic conflicts, reduce impacts to adjacent neighborhoods, and maximize effectiveness of pedestrian/bicycle systems. An overall Site Development Plan shall be provided by the developer at the time of further planning approval evaluation to include the following as a minimum.

a. Site plan total property noting all land uses and densities; vehicular, bicycle, and pedestrian circulation; parking and loading areas; landscaping and other buffering media; design of onsite recreation areas in close proximity or adjacent to public park areas.

b. A phasing plan to assure precise timing of completion of circulation systems, landscape and buffer media, and amenities.

c. A topographic overlay to note onsite elevations in relation to building pads as well as the elevations of immediately adjacent neighborhoods.

d. Setbacks and height limitations which are designed to protect adjacent land uses.

Lot Assembly and Access Policy Guidelines for Moon Drive Area:

A. Area North of Eighth Street.

- Minimum assembly pattern of three lots shall be required.

- Single driveway access from Eighth Street to each development shall be allowed.

- No vehicular access from Victoria Avenue shall be permitted to any development except for a right-turn exit only from the development onto Victoria Avenue.

B. Area North of Moon Drive to Eighth Street.

1. Lots Fronting on Victoria Avenue

- Minimum assembly pattern of two lots shall be required.

- No vehicular access from Victoria Avenue shall be permitted.

- Single driveway access from Moon Drive and Eighth Street shall be permitted.

2. Lots Fronting on Alameda Street

- Minimum assembly pattern of three lots shall be required.

- No vehicular access from Alameda Street shall be permitted.

C. Area North of Third Street to Moon Drive.

1. Lots Fronting on Victoria Avenue/Moon Drive

   - Minimum assembly pattern of three lots shall be required.

   - Moon Drive shall be widened from Victoria Avenue to the rear of the three lots fronting Victoria Avenue as a part of any development which occurs on that lot combination. All widening shall be done per the specifications of the City Engineer.

   - Vehicular access from Victoria Avenue shall be limited to one two-way driveway located between Walker Street and Moon Drive and not to be located closer than 150 feet from either intersection.

   - Internal access to be provided at the rear of the commercial properties shall be through the use of a minimum 25-foot wide, two-way mutual access driveway. Any such driveway shall be installed at the rear of the portion of the property. A public alleyway shall not be allowed.

2. Lots Fronting on Alameda Street

   - Minimum assembly pattern of two lots shall be required.

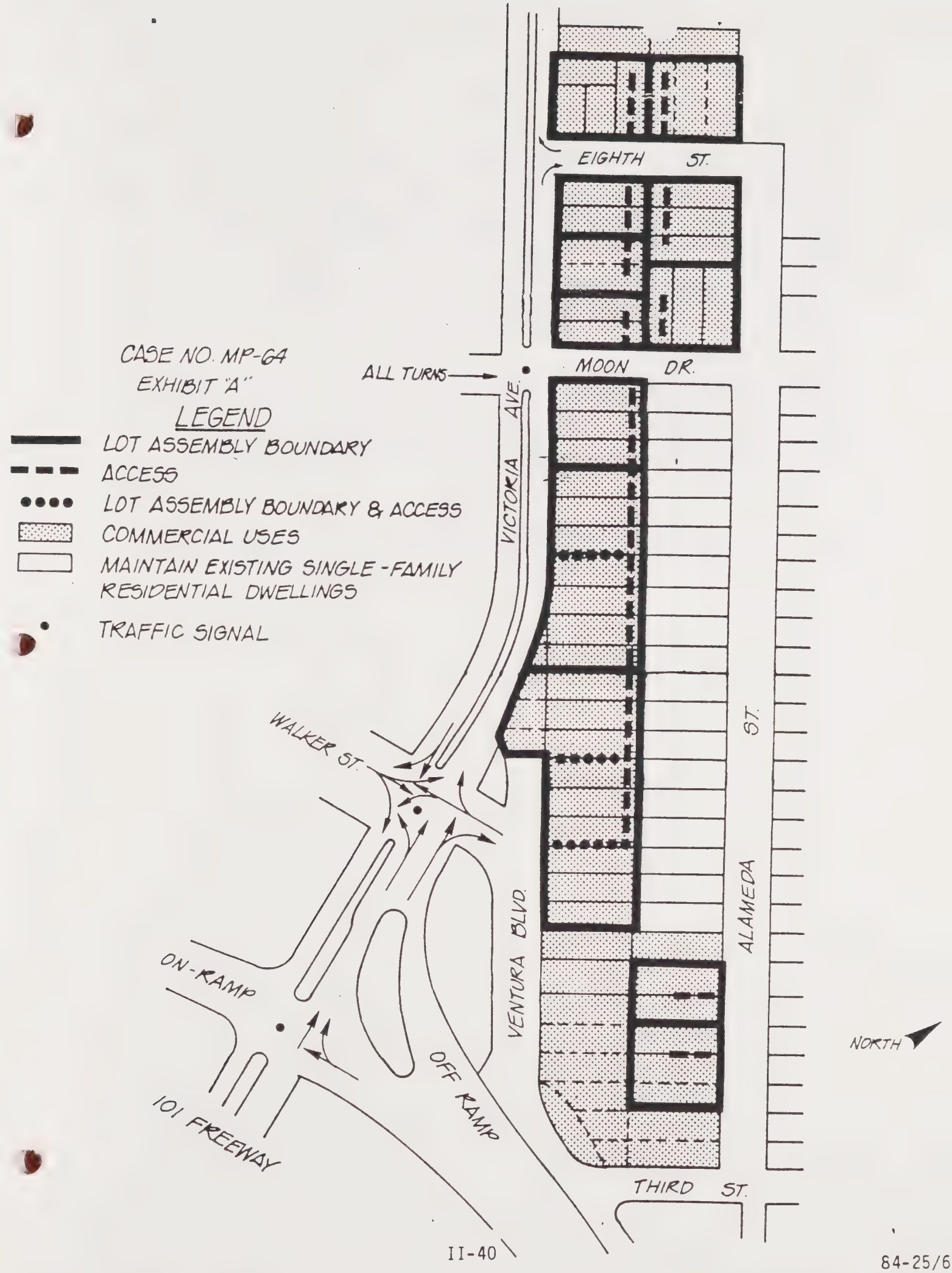
   - Single driveway access to each development shall be permitted.

3. Lots Fronting on Ventura Boulevard

   - Two driveway accessways shall be provided for those lots fronting on Ventura Boulevard. These driveways will link access from Ventura Boulevard to the internal driveways located at the rear of the properties.

Intent and Goals:

While the lot assembly and internal access plans are intended to be flexible, the plans recommended have been based upon existing land uses, patterns of ownership, and anticipated traffic and circulation patterns on Victoria Avenue. These plans are intended to preclude individual lot commercial developments and accesses to Victoria Avenue, land locked or residual parcels that might occur without lot assembly, and having to contend with differing lot assembly and access schemes on a case-by-case basis.


CASE NO. MP-64
EXHIBIT "A"
LEGEND
LOT ASSEMBLY BOUNDARY
ACCESS
LOT ASSEMBLY BOUNDARY & ACCESS
COMMERCIAL USES
MAINTAIN EXISTING SINGLE-FAMILY RESIDENTIAL DWELLINGS
TRAFFIC SIGNAL
EIGHTH ST.
MOON DR.
ALL TURNS
VICTORIA AVE.
WALKER ST.
VENTURA BLVD.
ALAMEDA ST.
ON-RAMP
OFF RAMP
101 FREEWAY
THIRD ST.
NORTH

84-25/62

Redevelopment Standards:

It is the City Council's intent that the redevelopment strategies for this area allow for a variety of general retail or office uses in areas proposed for commercial uses rather than transient or auto oriented uses, such as repair or storage facilities or fast-food restaurants, bars or cocktail lounges. In order to more fully meet the objectives of these strategies, to complement existing and future commercial and residential uses, and to minimize potentially unsightly and noisy conditions, it is the intent of these strategies that all new commercial uses be compatible in character and scale with surrounding commercial and residential uses.

All properties to be redeveloped shall be annexed to the City. Zoning of all parcels for redevelopment shall be C-P-D (Commercial Planned Development) with a maximum height of two stories and shall otherwise conform to the City's C-P-D zoning standards. Lot assembly and access points shall be determined according to the adopted strategies for each subarea and all shared driveway accesses for internal roads shall have a minimum width of 25 feet.

Where commercial property lines abut residential property lines, all parking areas shall be screened from the view of adjacent residential uses by either dense landscaping or a solid masonry or block wall.

NORTH BANK COMMUNTIY

Intent and Rationale for Land Use Designations:

General Character: The main intent of the Land Use commitment for this community is to have the Community develop industrially in as attractive a manner as possible, while also providing the opportunity for commercial, and in some cases, residential development to occur. The North Bank Community is the only community in the City which is divided into two sections by a Freeway. First, the southwesterly portion has some very positive characteristics which make it appropriate for industrial and Planned Mixed development; there is good visibility from and proximity to the Ventura Freeway, large undeveloped land holdings, no barriers to internal circulation systems, visual attractiveness, and an already proposed planned industrial park, the Winnebago Industrial Park project. The only drawbacks to the area's potential are the existence of unattractive development in the Santa Clara River Flood Plain area southwest of the Ventura Freeway bridge over the river, and public works infrastructure deficiencies, especially with regard to traffic and the existing freeway interchange at Leland/Sherwin Avenue. In contrast to this section, the northeastern portion of the Community contains a great deal of unattractive, scattered, and non-compatible mixed uses which exist under County jurisdiction, and most of the undeveloped land is somewhat visually obstructed from the Ventura Freeway by present development. Although this area has favorable industrial potential by virtue of its location and physical characteristics, its present state of development detracts greatly from its immediate potential when compared with other similarly situated lands.

Commercial Uses: There are two Planned Commercial (PC) designated sites within the North Bank Community, both of which abut Victoria Avenue. The property located at the intersection of Olivas Park Drive and Victoria Avenue is ideally suited for a commercial use, particularly considering that Victoria Avenue will be extended over the Santa Clara River in the very near future. The Planned Commercial designation was placed on this property so as to insure that the Commercial development will not detract from the aesthetic qualities of the adopted Scenic Approach of the City in the area. In regard to the other PC designated land at the Valentine Road and Victoria Avenue intersection, the main intent is to upgrade the physical appearance of the existing commercial uses while controlling the design of future development; again, this is mainly due to the fact that the area is highly visible from the Ventura Freeway.

Industrial Planned Development: As was stated earlier, the major function of the North Bank Community is to provide choice land in terms of industrial expansion, but in the area south of the Freeway, corporate office uses are appropriate. The property south of the Freeway is relatively undeveloped, has a high degree of exposure from an adopted Scenic Highways route, and can be Master Planned in a creative manner. The Industrial Planned Development (PM) designation should not be construed as a prohibition against other uses so long as all uses are compatible, well integrated and well designed. The main intent of the PM designation, in this case, is to insure that the architectural and landscaping details of the

Master Plan developed for these properties will protect the scenic quality of the area and that the City is preserving an appropriate amount of industrial land for future expansion.

The existing development adjacent to Ventura Road south of the Ventura Freeway, is presently inconsistent with the intent of the Adopted Scenic Approach designation of the Scenic Highways Element. The area is unsightly and has been developed mainly in the Santa Clara River Flood Plain. It is the intent of these Policies that the City re-zone the area from industrial to an MPD zoning classification so as to make all the uses in that area non-conforming. In this manner the City can, over an extended period of time, upgrade the area.

The Industrial Planned Development (PM) designation north of the Freeway has been placed on the property that has a variety of existing mixed uses; Industrial, Commercial, Residential, and Agricultural, and is under county jurisdiction. The intent of this designation is to make a commitment to begin to change the use and visual character of the existing development in this area. The existing character of uses on unincorporated parcels in the adopted Scenic Approach area has a definite adverse impact on the visitor to the City, and on the City's ability to attract a clean industrial and business oriented development to this area. The PM designation is the first step in trying to have a coordinated Land Use Policy for this area.

Planned Mixed Use Development: The purpose of designating the large parcel north of the freeway as PMXD is to provide an incentive for the private market place to develop this area and to insure that this entrance to the City is enhanced by whatever development and public improvements are made to the property. The general orientation of the PMXD development on this site should be industrial, general commercial and support commercial for the other uses; and, the PR of the high-density (20 to 25 DU/Ac). The PMXD designation will also attract development which will be able to finance the interchange improvement needed at the Sherwin Interchange of the Ventura Freeway. The PMXD designation can be distinguished from the PM designation specifically in this instance in that the PMXD will allow residential development to occur, whereas the PM designation will not.

In terms of the PMXD area south of the 101 Freeway, the intent is to allow for a new automobile dealership center area, a variety of industrial land uses and perhaps some general commercial uses, in a high quality, master planned environment which is cohesive in its architectural and landscape design. Due to the site's high visibility from the 101 Freeway, this will ensure that this entrance to the City is enhanced by the development and public improvements which are made to the property. In this context, the "auto center" area is intended to be developed on larger parcels, available for new car sales and service dealerships. This area should be designed in a unified fashion that will integrate any new dealerships with the seven existing auto sales facilities located along Leland Street and Perkins Avenue.

Due to the large public service infrastructure and circulation deficiencies in this area, no further development, parcelization or expansion of the existing development shall occur until a specific plan is approved for the PMXD and adjacent PM designated area to the east. At a minimum, this plan shall include the following major components:

1. Capital Improvements/Financing.

2. Zoning and Land use, including area devoted to open space.

3. Parcel size, type and size of anticipated users.

4. Traffic and internal circulation, including pedestrian and bikeways.

5. Freeway interchange study for provision of a new off-ramp/onramp in the vicinity of Leland Street and Sherwin Avenue.

6. Public infrastructure requirements, including sewage, drainage, water, street lighting, etc.

7. Overall architectural controls, including building design, landscaping and signage.

8. Air Quality maintenance plan to indicate maximum feasible reduction emissions using features such as traffic signal synchronization contributions, contributions to Commuter Computer, provision for bicycle transportation facilities, etc.

   This will ensure that the area is developed in an integrated, high-quality manner that is consistent with State law regarding the preparation of specific plans.

9. A traffic study and recommended solution for the area bounded by the Santa Paula Freeway on the north, Telephone Road to the Harbor on the west, the Santa Clara River on the southeast, and Montgomery Avenue on the east. Such study shall take into account existing and potential development and shall also review the traffic capacities of the U.S. 101 Freeway bridges over the Santa Clara River.

Rezoning Program:

When the current County zoning on the property is in conformance with the existing use and with the Comprehensive Plan, upon annexation of the property, the property shall be automatically zoned to the City zone closest to the existing County zone. When either the existing use or the existing zone is not in conformance with the plan designation, a rezoning hearing will be held after annexation.

OLIVAS COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The great majority of the property in the Olivas Community is designated for Agricultural Use 1990. It is the intent of this designation to preserve and protect this prime agricultural land and to ensure its agricultural viability. To enhance the scenic quality of this area, existing tree rows adjacent to the agricultural uses shall be retained. The City shall continue its efforts to implement the Arundell Bikeway by coordinating with the appropriate public and private entities and seeking necessary funding.

There are a few parcels, though, that are designated as Phased Urban. The property at the southeast corner of Olivas Park Drive and Harbor Boulevard is designated for Tourist Oriented Planned Commercial development and the properties on Palma Drive below the Southern Pacific Railroad are shown for Industrial use. These designations should encourage uses which are appropriate by virtue of the location of the property, are compatible with existing development and will preclude premature and isolated residential development which could require premature extension of certain municipal services in a primarily agriculturally oriented use. The PC-I development should be oriented to the development proposed for the Marina and the golf course. The vacant industrial land on Palma Drive could also be oriented to a marina related use.

Flood Plain: It is the intent of this designation that urban uses not be permitted until the development and adoption of a Flood Plain Ordinance and Management Program by the City. This does not imply that such uses will be allowed upon adoption of a flood plain ordinance. Rather, it is intended that uses allowed within the 100-year flood plain shall be compatible with a flood plain ordinance and the underlying land use designation. Management of the river should involve the coordinated efforts of the cities of Oxnard and San Buenaventura, Ventura County Flood Control District, and State Department of Parks and Recreation.

Intent and Rationale for Land Use Designations

General Character: The Pierpont-Keys Community is a unique, beach-oriented, residential area, which includes support commercial facilities and an elementary school. This community also includes an expanding tourist-oriented commercial base, centered around the Ventura Marina complex, and the freeway-oriented commercial area generally north of Seaward Avenue. The proposed land use policies for this community are intended to preserve the character of the existing residential development in this area, while promoting commercial uses which are compatible with the community's existing tourist-commercial orientation.

Parking, for both residential and commercial uses, is generally inadequate throughout the community. In order to mitigate the impact of future development and redevelopment on the parking situation, the City shall strictly enforce all parking standards. In order to relieve existing limited public access conditions, the City shall require that provisions for public parking be incorporated into new development or redevelopment projects whenever appropriate and feasible as it affects public access. This requirement, however, shall not apply to small residential projects such as single-family and duplex development.

Residential Uses: There are two distinct residential sectors within the Pierpont-Keys community: the Pierpont Lanes area and the Ventura Keys area (which includes a large mobile home park near the Marina).

Pierpont Bay: Current zoning and development in the Pierpont Bay area presents several major problems, including non-conforming lot sizes and uses, illegal conversions, inadequate parking, and other related problems (see Chapter 36, Community Profiles). Zoning variances and earlier policy resolutions have permitted development at densities which are significantly higher than the maximum densities permitted by the zoning in this area. However, the existing pattern of development and substandard street widths support continued high-density development of this type.

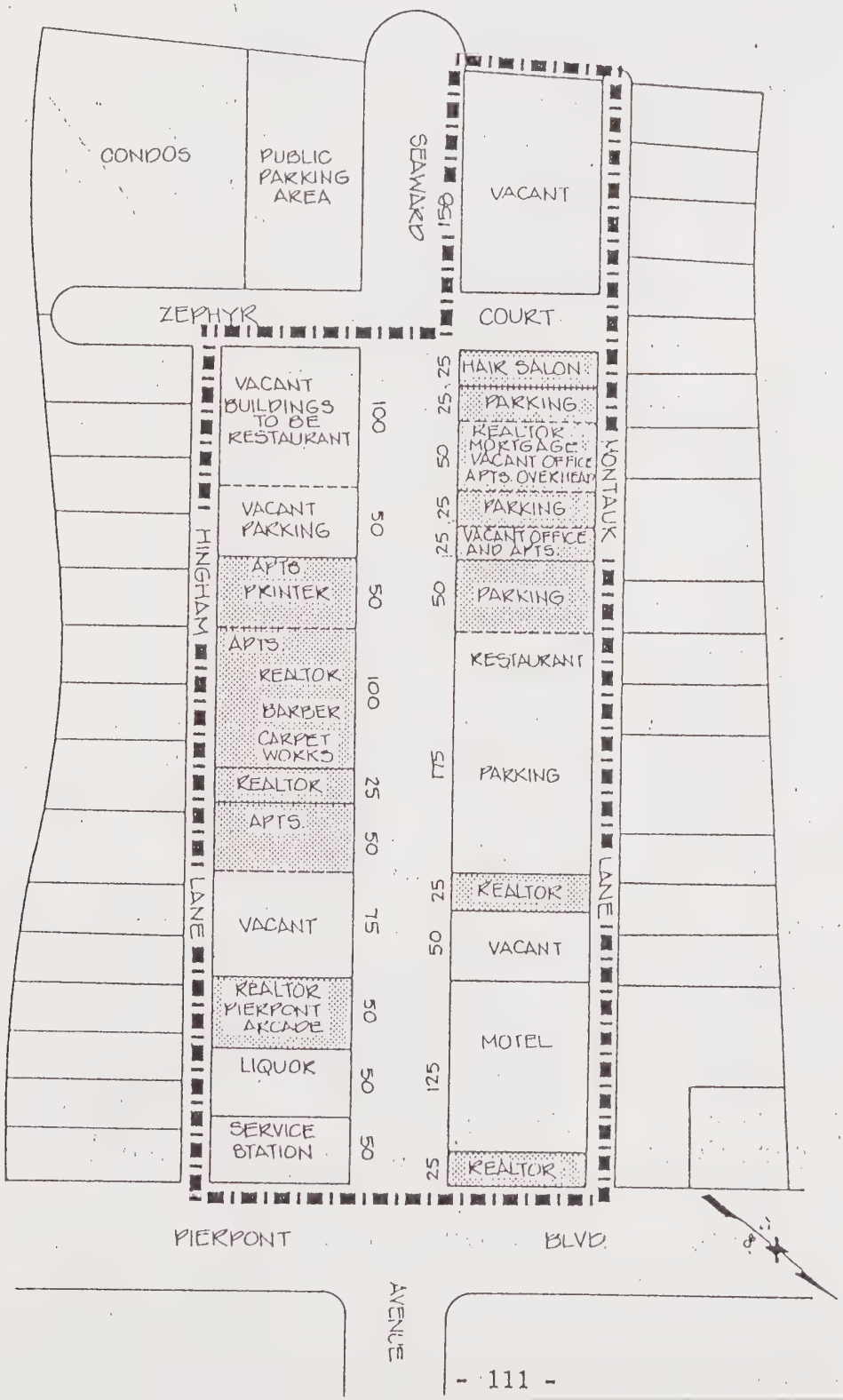
To preserve Pierpont's unique character, rezoning of the Pierpont Bay area shall be undertaken. The existing R-2-B Zone (two-family residential beach zone) shall be revised to reflect development standards adopted by the City and the State Coastal Commission for the area (see Tables 36-1 and 36-2, Community Profiles.) In addition, a new single-family, beach-oriented zone shall be developed for existing R-1-6 and R-1-7 zoned parcels, which reflects the Coastal Commission and City development guidelines in order to preserve the single-family character of the area, recognize lot widths and areas and other problems which are not consistent with the existing zoning.

MAP 8 - SEAWARD AVENUE AREA

SEAWARD AVENUE AREA DESIGNATED PC-T (PLANNED COMMERCIAL TOURIST-ORIENTED

TOURIST-ORIENTED COMMERCIAL USES EQUAL 835 FEET FRONT FOOTAGE

NON-TOURIST-ORIENTED COMMERCIAL USES EQUAL 525 FEET FRONT FOOTAGE



In addition to zoning revisions, it will be necessary to address other specific planning problems in the Pierpont Bay area. For example, illegal conversions of single-family units into duplexes should continue to be addressed through an active inspection and zoning enforcement program. Mechanisms for relieving existing residential parking problems, such as the formation of a special parking district, or the possible acquisition and improvement of undeveloped lots for parking purposes should also be investigated.

Ventura Keys: The existing character of the Ventura Keys tract is that of an exclusive, water-oriented low and medium density residential neighborhood. To achieve consistency between zoning and existing development, and thus preserve the neighborhood character of the Keys, rezoning of this tract should also be undertaken. In areas where single-family development predominates (existing R-1-6 zoned parcels, as well as R-3-5 parcels in the vicinity of Seafarer Street and Seashell Avenue), parcels should be rezoned, where necessary, to an appropriate single-family zone which reflects the character of existing developments. Similarly, other R-3-5 zoned parcels, which have developed generally as duplexes and triplexes, should be rezoned to a more appropriate multiple-family designation which reflects the existing development. Otherwise, at some point in the future, there may be pressure to increase the number of units on certain properties because the present zoning permits a higher density.

Commercial Uses: The intent of the Planned Commercial - Tourist-Oriented (PC-T) designations, in the area west of Harbor Boulevard and south of San Buenaventura State Beach, is to ensure that the potential for high quality tourist-oriented commercial development in this community is fully realized and not diminished by the establishment of general commercial or service commercial uses (e.g. real estate offices, neighborhood commercial stores, etc.). Because of the developed nature and visitor-serving potential of the Seaward Avenue commercial strip area west of Pierpont Boulevard existing non-tourist oriented uses (e.g., general offices) shall not be permitted to encroach into this area beyond existing ratios. Based on front footage calculations to determine existing ratios, this area is comprised of 38.7% (525 linear foot frontage) of non-tourist oriented uses and 61.3% (833 linear foot frontage) of tourist oriented uses (see Map 8). New commercial developments should be designed to complement the visual character of the adjacent Pierpont Bay neighborhood (being of a bulk, height, and color that is compatible with that character), thereby enhancing the unique locational characteristics which cause this area to be designated as a 'Scenic Approach.'

Sensitive Habitat: The intent of the Sensitive Habitat designation for the wildlife lagoon is to protect that habitat which supports animal life, particularly rare and endangered species, from urban disturbances. All development in the area surrounding the wildlife lagoon sensitive habitat area shall be reviewed to mitigate any potential impacts on the sensitive areas. Development within the wildlife lagoon sensitive habitat area shall be subject to the following criteria:

General Criteria:

1) Any adjacent development in this area shall be suitably buffered from the sensitive habitat areas and shall incorporate measures to mitigate any potential adverse impacts.

2) Public access to the lagoon and river mouth shall be limited to nature study purposes. Fencing, signage, and other measures shall be used to inform the public of the sensitive habitat and need for restricted access.

Wildlife Lagoon:

3) The existing vegetative screen and berm shall be maintained and, where feasible, enhanced, to separate the lagoon from the surrounding uses.

4) No development, except for facilities necessary to the functioning of the Wastewater Treatment Facility, or for interpretive facilities, shall be allowed.

5) Visual access into the lagoon area may be provided to enhance nature study opportunities by locating observation and interpretive facilities along the perimeter of the lagoon.

River Mouth:

6) The river mouth area shall be retained in as natural a state as possible and no development, other than interpretative facilities for nature study purposes, shall be allowed.

7) The City should consider entering into a joint use agreement with the State Department of Parks and Recreation for management of the river mouth.

8) The City should consider the expansion of the Santa Clara River Estuary Natural Preserve into the City-owned portion of the river mouth.

Energy Facilities: It is intended that the existing oil storage facility, located adjacent to Ventura Harbor, be permitted to operate as long as it is functional. If the existing operation should be terminated, the site shall revert to Harbor Commercial use. It is further intended that the vacant portion of the oil storage site be used for Harbor Commercial uses unless the site is essential to coastal-dependent industry.

In order to buffer surrounding uses from development on this site, it shall be required that any new coastal-dependent industrial development:

1) Provide adequate buffering (e.g., landscaping, wall) around the perimeter of the site to mitigate potential adverse visual impacts.

And that any new coastal-dependent industrial or harbor commercial development:

2) Be designed to minimize impacts that could adversely affect the sensitive habitat area through such measures as setbacks, screening, landscaping, and limited access points.

San Buenaventura State Beach: It is intended that the San Buenaventura State Beach General Plan, prepared by State Parks and Recreation and adopted July, 1979 (see Exhibit B), be incorporated into the City's Local Coastal Plan with the following revisions:

1) Delete Recommendation No. 2, Page 26: "The Pierpont Area," which recommends the possible development of a multipurpose trail along the Pierpont beach area.

2) Amend Local Coastal Plan Recommendation No. 2, Page 28: "The department recommends that Harbor Boulevard remain a two-lane road (one lane each way) the entire length of San Buenaventura State Beach except as may be necessary to accommodate improvements such as turning lanes, sidewalks, and bike paths."

Development plans for this State Beach shall be reviewed by the City for conformance with the adopted plan. The City and State shall coordinate during the development review process with particular attention being given to: (1) maximum numbers of vehicles allowed for camping purposes; and (2) landscaping plans, especially along Harbor Boulevard and overnight camping area.

Wastewater Treatment Plant: The existing urban area located along Harbor Boulevard south of and adjacent to the Ventura Harbor is the City's Wastewater Treatment Facility. This plant will remain as the land use for this location both now and in the future.

EXHIBIT B
SAN BUENAVENTURA STATE BEACH GENERAL PLAN
AS ADOPTED BY THEE
CALIFORNIA PARKS COMMISSION
JULY 1979

ADOPTED POLICIES

The Downcoast Day-Use Area

1. Because of the need to generate revenue to offset operating costs, a controlled entrance will remain to collect fees in the downcoast day-use area. The present entrance is adequate; development of a new entrance would be expensive and unnecessary. However, since the access is in a relatively unknown area, signs will be put up to direct people to this area.

2. Each row of parking in the large parking lot should be changed from diagonal parking to perpendicular parking. This will allow two-way traffic and ease a confused and tight parking situation. The resurfacing, striping alignment, and landscaping will cut spaces from 971 to about 425. But since the parking area has never been used to capacity, and since additional convenient parking areas will be developed, this cutback in parking spaces should not affect present use patterns.

3. Additional planting will be located in the large parking lot. New trees will be placed in existing planters, and additional areas will be landscaped to break up the wide expanse of paving. This will help soften the view from Highway 101 and the bluff behind it.

4. Two additional parking areas will be provided, following the 1963 General Development Plan guidelines. Both parking areas are along the park entrance road. These Parking areas will help ease access for picnic use. One lot will hold 215 vehicles, while the other will hold 164 vehicles. This will provide a total of about 805 downcoast day-use parking spaces.

5. Two group picnic facilities are proposed for San Buenaventura State Beach, close to the beach and comfort station. They are to be located near the entrance at San Pedro Street. This location will provide easy access to the larger picnic area, which has a large, grassy turf area suitable for free play or organized games. A loading and unloading area for picnic supplies will be constructed on the existing turnaround near the contact station. Parking for group picnic users will be available when a new 164-space parking area is built. The group picnic facilities will accommodate about 90 people in one area, and 100 people in the other. These areas could also be combined. Two fire rings will be constructed, one for each area, and a food storage, preparation, and serving area consisting of cabinets, countertop, stove, sink, water, and electrical outlets.

6. Two turf areas will be developed between the beach and group picnic facilities, with 15 individual picnic sites (table and stove on a concrete pad). They will be located next to the beach promenade. The turf can be used as a play or sunbathing area.

7. The concession building will continue to be used as a snack bar and beach rental equipment facility. The concessionaire usually opens the buildings on weekends from Memorial Day to Labor Day.

8. A children's play area will be developed in the large day-use picnic area. This area will contain children's play equipment on a sand base. A small wall can be built around it, providing places to sit as well as a way of keeping the sand in place. Individual and group picnic users could use this facility.

9. A fitness trail is proposed for the downcoast day-use area. It will be developed by the operational staff. The fitness trail will consist of a 1/4-mile jogging loop with exercise stations and its appropriate equipment.

10. Overnight camping will be permitted in the proposed parking area that is directly east of the present day-use picnic area, with the following restrictions:

    a. To be used only for emergency overflow when Carpinteria, Emma Wood, and McGrath state beaches have reached their capacities. This will allow maximum use of existing facilities and help to satisfy camping needs on peak-use days.

    b. For self-contained recreational vehicles only. There will be no hookups or trailer sanitation station.

    c. No new facilities will be constructed for this site.

    d. No developed campsites (picnic table, stove, cupboard) will be constructed for camping.

    e. Campers will be allowed access to this parking area at 7 p.m., but must vacate the area by 9 a.m. the next day.

    f. The unit will not be on the reservation system.

    g. Care will be taken to provide as much screening as possible in this area to block the view of this camping area from Highway 101 and the bluff behind it.

    h. Campers will be allowed to use the existing day-use facilities only when this does not interfere with regular day-use activities.

11. Because of the flooding problems around the existing residences on Harbor Boulevard, it is proposed that these buildings be moved to the present downcoast day use entrance area. Water, sewage, electrical, and telephone hookups are available. Entrance to these residences would be off a less busy street (San Pedro Road, as compared to Harbor Boulevard) and in a more residential setting. Relocation of these buildings would also open more room for service yard expansion if needed in the future.

<u>The Pier Area</u>

1. The 80-car southernmost parking area will be redeveloped to a double-bay parking area with entrances off Harbor Boulevard. This will allow people safer access to parking without having to back out into Harbor Boulevard traffic. It will also provide more parking and free access to the beach and concession facilities. Development will extend out only to where the existing

turf ends and the sandy beach begins. The turf, which is a maintenance problem, will be eliminated. The proposed parking area will be heavily planted.

2. The existing comfort station will be demolished and replaced with a new one (low water use when funds are available) at the same location. This will cut the parking area into two sections, which will help circulation by stopping people from traveling the entire length of the parking area. We will also create four parking entrances/exits, two on each side of the proposed new comfort station.

The Allesandro Lagoon Area

1. It is recommended that Alessandro Lagoon be improved to preserve the wildlife habitat. This would mean constructing an island in the middle of the lagoon for a waterfowl sanctuary and removing the domesticated waterfowl. The existing metal chainlink fence would be removed and a viewing area would be established. A better-looking three or four-foot fence would be built to help keep out domesticated animals (primarily dogs and cats), while providing an unobstructed view into this area. An interpretive panel will be placed inside the fence to explain the existence of the lagoon as a remnant of a larger lagoon, identify vegetation and wildlife, ask people to stay out of the area, and explain why they should not feed the waterfowl. This should help prevent vandalism.

2. The small, triangular area across from Alessandro Road should be kept open, since it is a steep embankment and not usable for any recreational activity or development.

The Pierpont Area

1. It is recommended that the underlying rubble be removed. This will improve health and safety conditions and allow the large beach cleaning equipment to maintain this area to a higher standard, while saving time and labor costs. This rubble removal should be monitored by an archaeologist.

2. The preliminary draft of the Local Coastal Plan for the City of Ventura includes a recommendation that a multi-purpose trail be developed on Shore Drive between the ocean and the Pierpont housing development. This would connect San Buenaventura State Beach with Marina Park. The recommendation was also made by the State Department of Parks and Recreation in the Ventura County Beaches Study, 1976, and this General Plan is in agreement. Shore Drive is owned by the City and is currently covered with sand. The trail would significantly improve access to the Pierpont beach area.

Transportation

1. A better signing program directing people in the downcoast day-use area will be instituted to create more even use of the unit. At present, there are no bus lines serving San Buenaventura State Beach. The closest stops are along Thompson Boulevard, which runs parallel to the unit on the north side of Highway 101, and at Pierpont Boulevard near the pier and on San Pedro Street near the entrance of the downcoast area. This would be helpful in creating more use, while decreasing vehicular traffic in the area.

2. A recreational train stop on the Southern Pacific railroad line at San Buenaventura State Beach would also help increase use and reduce reliance on private vehicles as a means to get to the unit.

Local Coastal Plan Recommendations

The department believes the local coastal plan should reflect the following recommendations:

1. San Buenaventura State Beach is recognized as an urban unit. Zoning around the unit includes both residential and commercial. The Department of Parks and Recreation thinks this unit is compatible with those land uses as they currently exist. Since expansion opportunities are limited, it is recommended that the present zoning be maintained.

   The department recommends that Harbor Boulevard remain a two-lane road (one lane each way) the entire length of San Buenaventura State Beach.

Concessions Element

1. The concessionaire should be encouraged to provide services at both the pier area and the downcoast day-use area. At this time, it seems the downcoast day-use facilities are only marginally successful economically. These facilities are opened only on weekends during the summer months. It is hoped that with additional development in this area, the concession service will prove to be economically feasible and expanded.

Intent and Rationale Statements

The Harbor Commercial (HC) designation in the Ventura Harbor area is intended to cause any new development in that area (including unincorporated County property which is zoned H-P-D) to be compatible with existing and proposed uses in the Harbor complex (as designated in the Harbor Master Plan). Development in this area, which is also designated as a 'Scenic Approach' to the City, should be designed to complement the existing visual and structural character of the Harbor complex, and the development should be oriented toward recreation, visitor-serving, marina, and commercial fishing uses.

Additional land use policies, specific to Ventura Harbor, are as follows:

To facilitate the recreation, tourist and commercial fishing opportunities within the Harbor complex, the Harbor Commercial (HC) designation shall give priority to visitor-serving commercial recreational uses over general commercial development, but not over commercial fishing, and shall protect coastal recreational land suitable for such uses. Because of the specific function of the Harbor, private residential and general industrial uses are not appropriate.

Uses within the Harbor complex shall be designated as either "priority" or "non-priority" uses. "Priority uses" shall include those uses listed in the Harbor Commercial "HC" Zone under Sections 8127A.3(a)(1), (2), (3) and (4) of the Zoning Ordinance. These uses are included under the headings of: (1) commercial visitor-serving, (2) recreation, boating, fishing, (3) commercial fishing, and (4) public service facilities. "Non-priority uses" shall include general commercial retail and offices as listed under Section 8127A.3(a)(5). To ensure that a minimum measure of "priority" land uses and facilities are provided in the Harbor complex: (1) no more than 10% of the land area of the Harbor (exclusive of streets and the existing mobile home park) shall be developed with "non-priority" land uses; and (2) a minimum number and/or type of facilities shall be required. Land area in the Harbor, exclusive of the mobile home park and streets, totals about 116 acres. Therefore, approximately 11.6 acres may be developed in "non-priority" uses.

As Planned Development Permits under the Harbor Development Plan are approved, the City shall make findings as to the adequate provision of minimum measures of facilities as required by the Harbor Segment of the Local Coastal Program.

Because of existing lease arrangements, the mobile home park is considered a long-term, existing non-conforming use. In the event that redevelopment of the mobile home park occurs, an amendment to the Local Coastal Program will be necessary. Unless adequate, affordable, low and moderate income housing exists nearby, redevelopment will include one-to-one ratio replacement housing and housing assistance for low and moderate income

tenants. Additional redevelopment will include at least 90% of the land area in priority development.

To ensure that lower cost recreational and visitor-serving facilities are available to all income groups, picnic tables, public rest rooms, pedestrian and bicycle accessways, pedestrian furniture, bicycle storage racks, small boat sailing, renting and berthing areas, and at least two lower cost eating establishments of at least 2,000 square feet each shall be provided. In order to attempt to ensure that overnight accommodations exist that are affordable to low and moderate income persons, the City will examine alternative methods, including hostels and campgrounds in the full LCP. In addition, the Harbor beach area, which provides a lower cost recreational activity, shall be preserved for general public recreational use.

In order to encourage recreational boating, non-water dependent land uses shall be limited within the Harbor's water area complex so as to not congest access corridors and preclude recreational boating support facilities. In addition, a minimum measure of recreational boating facilities shall be provided and/or protected, including 1,500 recreational boat slips, public launch facilities, dry boat storage and fuel dock facilities.

Recreational boating and commercial fishing shall be located and designed so as to not interfere with one another. Potential impacts from commercial fishing or general boat repair and construction operations shall be mitigated. Mitigation measures shall include the locating of such facilities away from existing residential areas.

A minimum number of facilities serving the commercial fishing industry shall be provided within the Harbor complex. These include berthing for 90 permanent and at least 15 transient commercial fishing boats, boat repair yard, ice facilities, fuel facilities (24 hour/day), laundry, shower and rest room facilities, two or more fish receiving facilities, a net repair area and hoists. In order to meet the changing technological needs of the commercial fishing industry, larger slips may be designated in the future, resulting in an actual decrease in number of slips while retaining an equivalent length of slip feet (4,200 slip feet) serving permanent and transient fishermen.

The location and intensity of land and water uses must be defined, in conformance to the Coastal Act, to assure no significant adverse cumulative impacts on coastal resources and access by both existing and potentially allowable development.

To ensure that the visual character of the Harbor is maintained, structures located on the South Peninsula shall be limited to two stories, not exceeding 30 feet in height except for such structures as theme towers, observation decks and radio antennas. The South Peninsula is defined as that area located on either side of Spinnaker Drive and north of an imaginary line drawn 2,400 feet south of the terminus of Spinnaker Drive.

To enhance visual quality and ensure that new development does not impede views to the water area from the roadway or to and from the beach and inland harbor area, the following policies are included. A view corridor shall be defined as that area between the roadway and water which is not occupied by buildings or solid walls and fences that would impede the view of the water from the roadway. View corridors shall be measured from the linear distance paralleling the nearest public road.

South Peninsula

For new development on the South Peninsula, the following criteria shall be applied to each lot, except for the National Park Service site.

1. Buildings and other structures shall not occupy more than 25% of the lot area.

2. At least 50% of each lot shall provide a view corridor to be measured from Spinnaker Drive.

3. Such a corridor shall provide a single unobstructed view.

4. All structures shall be limited to two stories, not exceeding 30 feet, except for an aquarium/research center which shall be limited to 45 feet due to its unique nature.

Southwest Harbor

For new development in the Southwest Harbor area, the following criteria shall be applied to the entire area taken as a single unit.

1. Buildings and other structures shall not occupy more than 25% of the total area.

2. At least 30% of the area shall provide view corridors to be measured from Spinnaker Drive.

3. All structures shall be limited to three stories, not exceeding 45 feet, except for theme towers and observation decks which shall not exceed 55 feet, and antennas and masts which shall not exceed 70 feet.

Central Harbor

For new development in the Central Harbor area, the following criteria shall be applied to the entire area taken as a single unit.

1. Buildings and other structures shall not occupy more than 25% of the total area.

2. At least 50% of the area shall provide view corridors to be measured from Spinnaker Drive or Navigator Drive as appropriate.

3. All structures shall be limited to three stories, not exceeding 45 feet.

Northeast Harbor

For new development in the Northeast Harbor area, the following criteria shall be applied to the entire area taken as a single unit.

1. Buildings and other structures shall not occupy more than 25% of the total area.

2. At least 50% of the area shall provide view corridors to be measured from Anchors Way.

3. All structures shall be limited to three stories, not exceeding 45 feet.

Harbor activities shall be clustered into locations appropriate to their use, to further Coastal Act policies. Basically, more intensive and higher density activities shall concentrate on the inland side of the Harbor. The South Peninsula, on the other hand, shall contain less intensive and dense uses, recognizing its unique character between two water bodies, its predominant water-oriented public recreational character, its effect on views to and from the beach, channels and towards the ocean and Channel Islands, and the need to assure that development and parking do not impact the sandy beach area. The addition of the National Park Headquarters has increased the significance of the South Peninsula as a use of greater than local importance and a visitor destination.

To further define location and intensities, the following policies shall be followed in all permit decisions in the Harbor (see Map for delineation of Harbor areas).

AREA LOCATIONAL AND INTENSITY POLICIES

1. Northeast Harbor Area: This area (i.e. all property lying north of Navigator Drive) shall be oriented toward commercial visitor-serving uses. Uses in this area shall be primarily oriented toward. (1) commercial visitor-serving uses whose primary orientation is not toward the commercial fisherman or recreational boater; (2) non-priority uses limited to public facilities and general retail and offices, and (3) non-water oriented commercial and public recreation.

2. Central Harbor: This area (i.e. all property between Navigator Drive, excluding Parcel 16, as found on the September 1979 Harbor Development Plan and the boundary of the Commercial Fishing Area) shall contain uses oriented toward or serving recreational boating. All other uses are prohibited, except that one full-service restaurant may be permitted.

3. Southwest Harbor Area: This area (i.e. Parcels 3A, 3B and 3C as found on the September 1979 Harbor Development Plan) shall be oriented toward or serve commercial fishing or recreational boating, including facilities required for their financial support. At least one lower-cost eating establishment shall be provided (minimum 2,000 square feet). Up to 50,000 square feet

of visitor-serving commercial uses may be permitted whose financial support is required to subsidize commercial fishing and recreational boating. Prior to approval of such uses, a detailed market analysis and financial feasibility study, including examination of all grants and loans available, shall be submitted to the City Council for their review and approval.

4. South Peninsula Area: This area (i.e. west and north of the Southwest Harbor Area) shall be oriented toward water-oriented recreational activities, including recreational and public beach use. One full-service restaurant may be permitted. At least one lower-cost eating establishment shall be provided (minimum 2,000 square feet). Other permitted uses include the Channel Islands National Park Headquarters and tour boat service. The area shall also include transient commercial fishing space in an area adjacent to the Southwest Harbor Area. Additional development on the sandy beach area, except for the 150 to 200 parking spaces to be specifically provided, is prohibited.

GENERAL LOCATION POLICIES

1. Ancillary buildings such as maintenance buildings and rest rooms, serving the general public and Harbor users, shall be permitted throughout the Harbor. More intensive public service buildings, such as police and fire stations and utility stations, shall be confined to the Northeast Harbor Area.

2. Existing facilities serving recreational boaters and commercial fishermen shall be retained, unless equivalent facilities are constructed elsewhere in the Harbor in conjunction with the redevelopment of existing facilities.

3. Non-conforming uses shall be permitted to continue in their present locations in conformance with present lease arrangements.

4. Dry boat storage areas shall be located inland of the first public road from the water's edge, because an oceanfront site is not essential for such use.

To ensure that these policies are followed, the City shall require that a Master Plan be prepared for this area and that it shall include the following: (1) type and location of existing and proposed uses, (2) approximate number and location of parking spaces, (3) a circulation plan, (4) design criteria, and (5) provisions to assure inclusion of the above location, intensity and minimum acreage policies, and other provisions.

Any master plan for Ventura Harbor shall be designed to ensure that future water development near the north end of the South Peninsula (i.e., Parcels 7 and 9) not interfere with boats that require tacking maneuvers when entering and leaving the Harbor's interior channels. However, such limitations shall not interfere with berthing for visitorserving uses, such as the Channel Islands National Park Headquarters and commercial tour boats, unless equivalent berthing is provided nearby.

Coastal Act policies contained in Public Resources Code Sections 30210 through 30607.1 are incorporated into the Comprehensive Plan.

Coastal Conservancy Application

The following is intended to provide sufficient language to allow California Coastal Conservancy assistance in possible projects relative to agricultural preservation, coastal resource enhancement, and coastal restoration:

The LCP represents the commitment of the City of San Buenaventura to provide continuing protection and enhancement of its coastal resources. It is recognized that certain resource areas in this jurisdiction may require further public attention to ensure their protection and enhancement. Such resource areas include:

- degraded or less than pristine wetlands of any size such as the Alessandro Lagoon and the two rivermouth areas;
- lands that have a history or potential for productive agricultural uses such as the Ventura River area;
- sensitive coastal resource areas which are suffering some form of deterioration or development pressure;
- areas which are appropriate for well-designed visitor and recreation facilities like the Fairgrounds; and
- areas where unused and/or subdivided lots require consolidation or redesign to permit appropriate land uses.

POINSETTIA COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Poinsettia Community is somewhat unique in its development pattern due to the fact that the majority of development has occurred in the hillsides and the level terrain has primarily remained in agricultural production. The 1974 Open Space Plan designated a significant amount of the land to remain in agricultural production. The intent of this plan is to keep the existing character of the community intact.

Residential Uses: There are three residential designations in the Poinsettia Community: SF, PR-15 and HSF-7. The PR-15 reflects a project which has already been approved. The intent of the SF reflects a project which has already been approved. The intent of the SF category is to preserve the single-family character of the area. The hillside designations are intended to maintain the single family character of the existing hillside developments.*

Agricultural Use 1990: The dashed, outlined area within the Agricultural 1990 designation depicts property that is shown as Phased Urban land on the 1974 Adopted Open Space Map, but is presently in a Land Conservation Contract. Due to the fact that this property is contiguous to Agriculturally designated land, is in an LCA Contract and the development of the area is not needed to complete a circulation system, its designation is changed from Phased Urban to Agricultural 1990.

*See Hillside Management Program (Section E) as this has superseded the HSF designation.

PREBLE COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Preble Community is essentially fully developed with the exception of a large parcel southwest of the railroad tracks. The general character of the Community is considered transitional - an area where little raw land is available but where there has been a shift of character and/or use due to functional, economic, social or physical forces in recent years. The Preble Community is unique, though, in that it has a unified Neighborhood Commercial Center, and conveniently located schools and play areas, and, in general, the character of the area is very similar to that of the planned neighborhoods in the east end, although the housing costs are relatively moderate. Changes in the community (such as intrusion by strip commercial uses, industrial uses) that would jeopardize its existing character should not be allowed. There is already an adequate amount of multiple-family zoning within the Community.

Residential Use: The only Residential designation is that of PR-15. The present use of this property (Southern California Electric storage and warehouse facility) is incompatible with the residential character of the area and the designation of this area as a Scenic Approach to the City. The PR-15 category compliments the R-3-5 zoning which is just to the north of the property. The Planned Development process will also assure that the aesthetic qualities of the Scenic Approach will be preserved and enhanced and the noise from the railroad mitigated. The property is currently zoned M-1 and should be rezoned so as to make the existing use non-conforming.

Agricultural Uses: This property is approximately 62 acres in size, is prime agricultural land, and is separated from surrounding uses by the railroad right-of-way and Highway 101. It is the intent of this plan to preserve and protect these prime agricultural lands from urban development.

Planned Manufacturing: The PM area is an approximate 25 acre triangular shaped site. The site is bounded on the north by the Southern Pacific Railroad and Seaward Avenue, on the south by Vista Del Mar Drive, and on the east by the easternmost Ventura Coastal Corporation (lemon processing plant) property line as it currently exists. This site is currently occupied by a lemon processing plant, which has a general appearance incompatible with its location on an adopted scenic approach to the City. Any expansion or improvement of the site shall be accompanied by heavy screening or improvements to the visual appearance of the facility.

Any redevelopment or resue of the site shall be limited to an agriculturally related industry (e.g., lemon processing) and shall require the development of a master plan for the site that would provide for the protection of the adjacent agricultural uses and be compatible with the adopted scenic approach designation.

Linear Circulation/Park System: It is recommended that the linear parks that are shown on the Open Space Plan shall be developed under the Linear Park Guidelines and furthermore that the tree rows surrounding the property shall be preserved, especially those that can be viewed from the freeway.

SATICOY COMMUNITY

Intent and Rationale for Land Use Designations

General Character: For purposes of developing land use designations, the Saticoy Community is considered as two distinct areas: The Saticoy townsite in the southeast sector of the community, and the remaining area to the north and west. The townsite was laid out in the late 1800's and developed as a small agricultural town with associated commercial and industrial support facilities. As in Montalvo, the Saticoy townsite developed as an unincorporated community, with County zoning and a separate sanitary district.

The remaining area of the Saticoy Community has developed in a similar manner to other East End communities, with a scattered mix of residential development (primarily single-family) and support facilities. Land use policies for this area are intended to encourage residential in-filling of "phased urban" parcels at relatively low densities, based on the fact that this community (along with Wells Community) is most geographically remote from centers of employment, commercial activity, schools, and social and health care services in Ventura.

Residential Uses: All but two of the major "phased urban" parcels in the Saticoy Community have been designated for low-density planned residential development (PR-8). This designation permits development of detached single-family homes, "cluster-detached" units, patio homes, mobile home parks, or higher density attached units with substantial open space dedications. Specific parcels which are designated PR-8 are as follows:

1. The 90-acre undeveloped property south of Henderson Road and west of Cachuma Avenue poses significant noise problems, in that the property is adjacent to the Santa Paula Freeway and a proposed junior high school. The design of this development should address these problems, as well as incorporating a linear park adjacent to the freeway.

2. The 8-acre parcel south of Henderson Road and west of Saticoy Avenue is adjacent to existing single-family development, and should be designed to mitigate freeway noise problems and access problems at Saticoy Avenue, as well as incorporating a linear park segment.

3. The PR-8 designation south of Darling Road and east of Cachuma Avenue includes a pending patio home project. The remainder of the property to the east should be developed under the same density, recognizing that existing single-family residences may remain there for an extended period of time.

4. The 20-acre parcel south of Telephone Road and north of Saticoy Avenue should be designed to complete existing east-west stub streets, and mitigate railroad noise problems through site design.

5. The area northwest of Darling Road and Wells Road contains a mix of residential and vacant parcels, which are largely under County rural-residential zoning. This area should develop under a master plan which addresses access problems, compatibility of existing rural uses, and proximity to existing institutional uses (e.g., schools, church, County fire station).

6. The 37-acres of property east of Wells Road between the Santa Paula Freeway and Darling Road should be developed under a master plan which mitigates access problems at Wells Road, as well as freeway noise problems.

Three small parcels are designated for single-family subdivision (SF) development. The property at the southwest corner of Telephone Road and Rubicon Avenue is a logical extension of the existing single-family development which surrounds it on two sides. East of this parcel is a former freeway right-of-way parcel, which is also surrounded by single-family development, and is adjacent to three stub streets. In addition, a small "home piece" parcel, adjacent to an existing single-family subdivision on the north side of Telephone Road and east of Gardner Avenue, should be developed as a single-family subdivision. A recent single-family development southeast of Cachuma Avenue and Henderson Road is also shown as SF.

Approximately 55 acres of property south of Saticoy Public Links is designated for medium-density planned residential development (PR-15). This property is appropriate for a mixed-density development, with higher-density units oriented toward the golf course (future regional park) and future shopping center. Site design should mitigate noise problems along the railroad frontage, and a linear park will be developed along the eastern border of the property. The City encourages development of this property at a higher density than that permitted on PR-8 designated parcels, in order to provide an opportunity for a mix of housing types in this community.

The 47-acre parcel south of Darling Road, between Wells Road and the Santa Paula Greenbelt is also designated PR-15. This area is appropriate for a mixed density development as it should afford the residents of the Saticoy townsite area future housing opportunities in the vicinity, taking advantage of future community services. The development of this parcel should also minimize potential urban/agricultural conflicts (e.g., through buffer areas and fencing) with the Santa Paula Greenbelt area.

Commercial Uses: Approximately 10 acres at the southwest corner of Wells Road and Telephone Road has been designated for a neighborhood commercial center for the Saticoy Community. This site would provide adequate neighborhood shopping facilities for existing and potential residential developments in the community, and is located for convenient access from all directions. The design of the center will be required to incorporate the Brown Barranca linear park/bikeway.

Institutional Uses: Saticoy Elementary School and Sacred Heart Catholic Church are identified as existing institutional uses in the Saticoy Community.

SERRA COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The Serra Community is relatively compact, has one of the best mix of housing types in the eastern section of the Planning Area and basic community services are generally centrally located. It is the intent of these policies to provide primarily for additional residential development to develop a complete residential environment with the full range of necessary services.

Residential Uses: There are a variety of residential categories designated in the Serra Community: SF, PR-8, PR-15, and PR-20.

The SF category is designated in areas which are almost completely surrounded by single family homes. The PR-8 category is designated on three relatively large parcels on the southeast periphery of the Community to minimize the amount of traffic having to travel through the Community toward the County Government Center or the major activity areas in the Regional Centers Area and still continue to encourage a variety of housing types in locations where they are most likely to be accepted by existing residents. Two parcels south of the Southern Pacific Railroad are designated PR-8 as it is felt that less dense developments are more appropriate below and in close proximity to the railroad, though these developments need to be well designed to minimize the noise generated by the railroad and take advantage of the open space afforded by the river and the linear park south of Petit Avenue.

There are four PR-15 sites within the Community. Two are relatively small and near the geographic center of the Community, while two others, a larger parcel and a very small parcel, are on the western fringe.

The centrally located sites are adjacent to single-family developments with one also adjacent to a high-density senior citizen complex and an apartment complex. These sites are within easy walking distance of the Community's main shopping facility and these higher-density developments should compliment the already existing developments in the area. The PR designation should give the City sufficient control to guarantee that the development does not adversely impact the adjoining singlefamily development by providing for extensive buffering on the western portion of the site.

The remaining two sites are bounded by agricultural lands with one parcel adjacent to a small area of single-family development. The PR-15 designation is placed on these lands because they are closer to the County Government Center and other high employment centers in that area; the development of these properties at these densities will help maintain a good housing mix within the community and as they are adjacent to major arterials and public transportation routes, they should afford convenient access to these employment centers. There is a one acre parcel designated PR-20 in the Community adjacent to an already approved development of a similar density. This land is on the edge of the fire service area for high-density development and the development process should assure that

sprinkler and other fire safeguard systems are installed to protect the City s fire rating and minimize the need for additional fire stations in the eastern section of the City.

Professional Office: A small one-acre site adjacent to the existing commercial facilities is designated for professional office use. This should compliment the existing commercial center. A two-acre site, containing the Kimball House, is located on the northeast corner of Telephone Road and Kimball Road. The intent of the plan for this site is to insure the preservation of the Kimball House as a valuable City historic resource, and to protect the character of the surrounding residential neighborhood from potential impact of office use. Development of the site shall be subject to the incorporation of the Kimball House as an integral part of the project, including such portions of the gardens as are necessary to preserve the setting and character of the house. Development shall also be subject to the Planned Development Permit process, which shall limit the height of any structure to two stories or 30 feet, provide minimum 20-foot setbacks from Telephone Road, Kimball Road, and Emerald Street and provide a minimum 20-foot setback between any building on the site and any adjacent residential structure so as to be compatible with the adjacent residential uses. In addition, the entire site should be developed as a single, unified center in terms of architecture, parking and circulation.

Institutional Uses: There are three future Institutional designations in the Community. Two of them are the already purchased junior and senior high sites and the third is an anticipated extension of an existing church. These school sites may not be used for some time and if they are ever sold by the School District their use should be of a Residential character.

THILLE COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The development in the Thille Community to date has been scattered along primarily the frontage of Telephone Road and Victoria Avenue and along the Ventura Freeway. This development pattern has left large islands of agricultural lands within the center of urban uses. The intent of this Land Use Plan is to provide a high density residential environment within the Thille Community while also providing for industrial and commercial uses in close proximity. As was the case in the Montalvo Community, there is a high possibility of conflict between these different types of uses and therefore, the extensive use of buffers throughout the Community either through setbacks and/or landscaping should be made.

Residential Land Uses: PR-20 is the only residential category proposed for the Thille Community. This higher-density residential category is proposed so that there will be an opportunity for an alternative life style to that of single-family development in the area around the County Government Center. Whereas the Montalvo Community already has existing single-family residential development, the Thille Community does not, which lends the opportunity for alternative life styles in close proximity to the County Government Center and other major employers in the area. The intent of this Plan is to have developments in the PR designated areas in the Thille Community provide a high ratio of open space area (non-vehicular) to floor area. Most of the residentially designated area in this community will be developed at a relatively high density and therefore these individual developments should provide a higher ratio of open space land than the other PR-20 designated areas in the City where there is typically a mixture of lower-density residential designations as well.

It should be noted that the two large parcels north of Telephone Road in the Thille Community which are designated PR-20 are presently in a Land Conservation Act (LCA) contract and that the property is being assessed on the value of what the land produces, and not at its true market value, which makes it more economically feasible for the property owner to continue farming. It is felt that this property's best use is a PR-20 residential development.

Commercial Uses: There are two areas of planned commercial use in the Thille Community. There is a PC designated area at the intersection of the Freeway Off-Ramp and Telephone Road (Rt. 101 Drive-in Theater). This property has been designated for planned commercial (PC) use because it fronts a major thoroughfare and is in a strategic location in regard to design considerations.

The other PC designation identifies a larger area on the west side of Victoria Avenue north of Rt. 101, which has a mixture of existing uses; notably a mobile home park, mobile home sales area and a restaurant. The mobile home park should be phased out in order to allow the master planning of the entire property for an appropriate re-use. It should be noted

that one of the major intents of the PC designation is to limit the number of ingress and egress points on Victoria Avenue, which is a problem with existing developments in some locations.

Professional Office: There is only one area set aside for Professional Office use in the Thille Community; on the south side of Ralston Street, west of Victoria Avenue. This proposed use is a logical extension of the already completed office complex in the area. It should be emphasized that due to the character of the existing and proposed development north of Ralston Street, namely, high-density, multiple family development, the area designated Professional Office should be well buffered from these uses through extensive setbacks and landscaping similar to site design criteria required for the Industrial Planned Development area. Any development must be reviewed through the Planned Development Permit review process.

Planned Mixed Use Development: The site directly west of the County Government Center, across Victoria Avenue and north of Telephone Road, has been designated PMXD. This designation is intended to reflect the main character of the already approved County Square development. This development will have a mixture of Professional Office, Commercial, and Residential development. It has been master planned and many of the aspects of the Plan are written into the covenants, conditions and restrictions on the property. The other proposed PMXD area in the Thille Community is at the northwest corner of Ralston Street and Victoria Avenue. This is a relatively large area of land which should be master planned even though some parcels may have to be assembled. The purpose of the PMXD proposal here is very similar to that of the other PMXD projects which are in close proximity to the County Government Center. The character of this particular PMXD project should be more Professional Office and Commercial oriented than Residential. The residential development would best be oriented to the linear park on the western edge of the property.

Industrial Planned Development: There is a large amount of land designated for Industrial Planned Development between Ralston Street and the Ventura Freeway. This area has already been master planned, but has not yet fully developed. Access to Ralston Street should be limited, with activity oriented to the other industrial or recreation uses to the south. Uses which could generate high truck traffic on Ralston should be carefully scrutinized before approval.

Linear Park: The Linear Park segment which is shown on the adopted Open Space Plan along the north side of the Ventura Freeway has been deleted from this Community Plan because development has occurred which precludes a continuous Linear Park System from being completed. Otherwise, the rest of the Linear Park System should be completed as represented on the Open Space Plan and as outlined in the Linear Park Guidelines.

Institutional: There is no neighborhood elementary school in the Thille Community. All students are now transported to either the Montalvo or El Camino Schools, although the entire Thille Community is within a one-mile distance of some elementary school. (Montalvo, El Camino, or Elmhurst). The school district should consider providing an elementary school site for this Community in light of the anticipated population increase, and the major traffic corridors which tend to isolate this community.

WELLS COMMUNITY

Intent and Rationale for Land Use Designations

General Character: The eastern half of Wells Community includes a scattered mix of single-family, apartment, and mobile home residences, served by a limited convenience-commercial center. Land use policies for this community are intended to encourage residential in-filling, and create a semi-rural residential environment that is functionally complete, though it may be necessarily more limited in services than surrounding communities.

Residential Uses: The three largest undeveloped parcels in the Wells Community are designated for lower-density planned residential development (PR-8). The travel distance between this Community and the "regional centers" area (which is a major destination point for employment, shopping, and social and health care services for this Community) argues against encouraging additional high-density development here. At the same time, the PR designation will permit the City to require specific design measures to mitigate problems of freeway noise, freeway access, and lack of recreation facilities.

In developing the two large parcels south of Telegraph Road, between Saticoy Avenue and Wells Road (36 acres and 50 acres respectively), proper siting of structures and open space buffer areas should be used to mitigate freeway noise problems. Common open space and private recreational facilities should be considered as means of mitigating the lack of public parks in the Wells Community, which is unlikely to be remedied in the near future.

The PR-8 parcel east of Wells Road, between Telegraph Road and the Santa Paula Freeway (48 acres), borders on the Santa Paula Greenbelt. Potential urban/agricultural conflicts should be mitigated in the design of this development, through setbacks and buffer areas, as well as proper fencing of the development.

Two small parcels northeast of Brown Barranca and south of Foothill Road are designated for SF (single-family subdivision) development. These parcels are adjacent to an existing single-family subdivision, and would provide an open space dedication through the linear park requirement on Brown Barranca. On the west side of Brown Barranca, south of Foothill Road, two recently-developed single family subdivisions are denoted as SF parcels.

Multiple-family residential development is deemed appropriate for a few parcels in the Wells Community. The first, at the northeast corner of Saticoy Avenue and Telegraph Road, should be designed to mitigate noise and access problems at this intersection. In addition, a one acre parcel north of Citrus Drive and Pajaro Avenue is designated PR-20 to permit completion of the final phase of an adjacent apartment complex. North of Telegraph Road and west of Wells Road, a PR-20 designation is used to denote a recently-constructed apartment complex. The MF-15 designation north of it applies to existing improved duplex lots on Kings Road.

Commercial Uses: Approximately 10 acres at the northwest intersection of Wells Road and Telegraph Road is designated for a neighborhood commercial planned development (PC-N). This parcel is located central to the currently developed and "Phased urban" portion of the community.

Approximately 10 acres at the intersection of Wells Road and Santa Paula Freeway are also designated for a neighborhood-commercial planned development (PC-N) to serve the existing population.

Professional Office: A three acre site adjacent to the neighborhood commercial site is designated for professional office use. This designation is the most compatible use given the location, traffic, and adjacent uses and is intended to be an' extension of the limited existing facilities to serve the community s residents.

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SECTION C

AREAS OUTSIDE OF CITY BOUNDARIES

North Avenue:

This document is a joint County of Ventura Area Plan and a City of San Buenaventura Comprehensive Plan Amendment for the North Ventura Avenue area. It is the intent of this document to provide a long range plan which will clearly state the County's and City's policies, and provide a basis for future actions in the area prior to annexation to the City.

Every effort has been made to minimize any discrepancies between the City's Comprehensive Plan Amendment and the County's Area Plan. However, there are minor differences in terminology, plan format and content in this Plan, and in the supporting General Plan elements of each jurisdiction (i.e., the Open Space and Conservation Elements, the Circulation Elements, and the Scenic Highways Elements). Accordingly, portions of this document are titled "County" (County of Ventura), or "City" (City of San Buenaventura), indicating the appropriate jurisdictional origin or responsibility for the statement/policy/program. In the various sections of this Plan, where no "County" or "City" modifier appears, the various statements apply uniformly to both jurisdictions.

A. STUDY AREA

The North Ventura Avenue Area is defined as the properties bounded by Buenaventura Academy Road (extended) on the south, the sanitary treatment facility and urban designated properties north of the treatment facility on the north; the westerly property lines abutting the Ventura River on the west; and the easterly property lines of parcels at the base of the hillside area on the east (see Figure 1).

The City of San Buenaventura, however, has omitted several parcels from their Comprehensive Plan Amendment. The affected parcels and the reasons for the omission is given below:

Parcels identified as APN 063-03-05, 06, 07, and APN 063-04-01 (located generally north of the City's sanitation plant), have been omitted from the City's Comprehensive Plan Amendment so as to be consistent with their adopted Sphere of Influence boundary. (These properties will not be eligible for water service based on the City's present water policy).

Parcels identified as APN 068-01-01 and 02, APN 068-02-01 and 02, APN 068-03-01, 02, 03, 04, 05, 07, and APN 068-04-01, 02, 05, 08, 12, 13 (located generally south of Gosnell Bend), have also been omitted from the City s Comprehensive Plan Amendment as they are located within the City's "Avenue Community." The City has designated these properties "Industrial" while the County's designations are "Industrial" and "Floodplain."

III. IMPLEMENTATION

Introduction

The Implementation Section contains the operative policies, programs, and maps which guide land use decisions in the North Avenue Community. This section includes the Land Use Element designations and policies, the plan maps (see Figures 2 and 4), and the zoning compatibility matrix (see Figure 3).

Contents of Plan

This Section has been adopted by both the County and the City for placement in their respective General (Comprehensive) Plans. The section provides a new community in the City's Comprehensive Plan. The County's North Avenue Area Plan also includes Sections I and II which function as an introduction and overview to the adopted policies. More specifically, the County and City have adopted the following:

County - The North Ventura Avenue Area Plan consists of Sections I, II, and III (text), Figure 1 "Location Map," Figure 2 "Land Use Element," Figure 3 "Zoning Compatibility Matrix," and Figure 4 "Bikeways."

City - The North Avenue Comprehensive Plan amendment consists of Section III (text), the accompanying map entitled "Land Use Element" (Figure 2), and Appendix A, D, E, F, G, H and 1.

A. INTENT AND RATIONALE FOR LAND USE DESIGNATIONS

1. General Character - The North Ventura Avenue Area has a unique character and development pattern which exists in no other part of the Ventura planning area. The Community lies in the Ventura River Valley, and has views of the Ventura River and the surrounding hillsides. Significant amounts of agricultural land create a rural atmosphere. Long term oilfield uses and oil related industry constitute the majority of the existing urban development in the area. These oil uses are currently undergoing a period of increased activity and upgrading of facilities. Given the stability of the existing residential areas and the importance of the oilfield development, the overriding intent of land use designations in this area is to protect the quality and integrity of the existing residential neighborhoods, to provide the expansion and upgrading of the industrial areas, and to protect the scenic vistas and environmental quality of the hills and river.

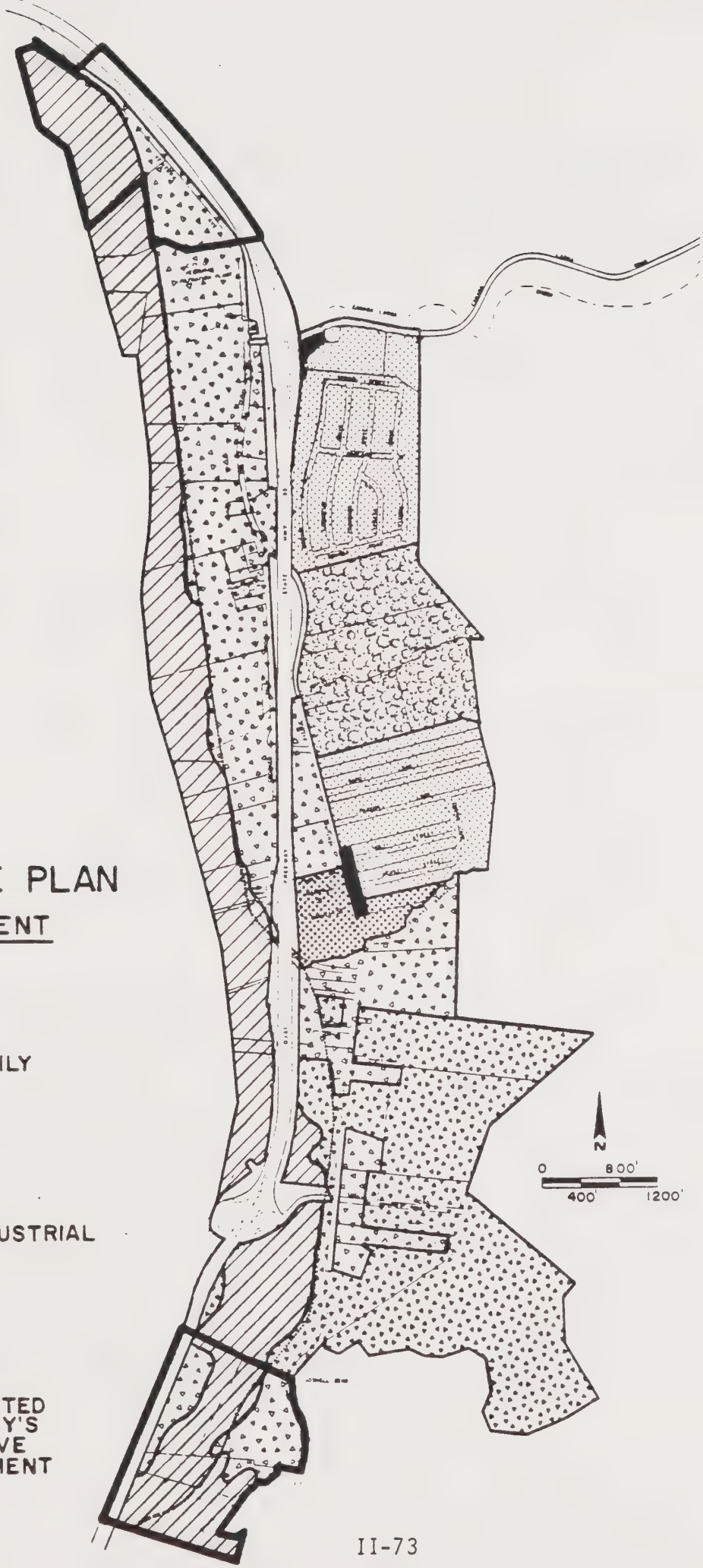
   The entire area, other than the Water Filtration Plant, is unincorporated County territory. Annexation of the area to the City is encouraged, but will be hindered by the existing oilfield development adjacent to the City and current annexation law. This situation will require much of the development of the area to proceed under County jurisdiction.

FIGURE 2

NORTH AVENUE PLAN

LAND USE ELEMENT

- RESIDENTIAL SINGLE FAMILY
- RESIDENTIAL MULTIPLE FAMILY
- GENERAL COMMERCIAL
- INDUSTRIAL
- OIL FIELD INDUSTRIAL
- AGRICULTURE
- FLOOD PLAIN
- PARCELS OMITTED FROM THE CITY'S COMPREHENSIVE PLAN AMENDMENT



SOURCE:
VENTURA COUNTY
PLANNING DIVISION

2. Residential, Single-Family - The existing residential development in the Community is primarily single-family The intent of the single-family designation is to emphasize the continuation of single-family development in those areas, and to encourage the upkeep and maintenance of these neighborhoods (maximum permissible density - 7 D.U.'s/Acre).

3. Residential, Multiple Family - The two existing mobile home parks are designated Residential-Multiple Family (maximum permissible density 13 D.U.'s/Acre). The Magnolia Mobile Home Park shall be redesignated "Industrial" at such time as the park ceases to exist so as to ensure that any new use is compatible with surrounding land uses. The Las Encinas Mobile Home Park, located east of Ventura Avenue, and north of the Las Encinas barranca, shall remain in multiple family residential use in the event the existing park ceases to exist.

4. General Commercial - This designation is intended to encourage the development and continuation of commercial services for the residential neighborhoods and support commercial uses for the industrial areas.

5. Industrial - The North Ventura Avenue Community contains a substantial amount of oil related manufacturing, light manufacturing and open storage facilities. These uses are appropriate, and the industrial designation is intended to allow their continuation and expansion, as well as the construction of new facilities consistent with the County's M-2 and M-3 zoning and the City's M-1 and M-2 zoning. The impacts of new or expanded industrial uses shall be evaluated on a case-by-case basis to ensure that no significant adverse impacts are generated.

6. Oilfield Industrial (Oil Extraction Industrial) - The new Oilfield Industrial category is intended to designate those areas where oil extraction uses are located. Such uses would include the removal, transfer and storage of crude oil and related products prior to refining. The Oilfield Industrial category does not include refining or storage of finished product. In establishing this category, it is recognized that industrial uses typically require the provision of urban public services, while Oilfield Industrial uses do not Oilfield Industrial areas may be converted to industrial uses if the property is found to be appropriate in terms of location, size, and the provision of public services. It is the intent that any conversion of oilfield industrial land to industrial uses be subject to the submittal of a master plan of public services for the site, which would evaluate the availability and capacity of public services and the impacts of the conversion on those services and provide programs for mitigating deficiencies.

Areas which are converted should be located such that they can be annexed to the City and make adequate provision for access to the remaining oilfields. The gradual development of a narrow strip of converted properties along the Ventura Avenue frontage is not appropriate.

The 67 acre hillside parcels located south of Shell Road (extended) and east of Ventura Avenue are designated "Oilfield Industrial." Most of the area is in oil production and is characterized by severe topographic constraints. The oilfield industrial category shall apply only after annexation to the City. The County's "Open Space" designation, as noted on the Open Space Element map (Appendix C), shall control until annexation takes place.

All new or expanded oilfield development shall meet County standards for oil drilling and extraction uses until such time as the City may adopt oilfield development standards, and any other requirement that may be necessary to adequately buffer and protect surrounding areas.

7. Agriculture - The Agricultural Use "1990" category identifies those lands that are designated for agricultural use based on the City's Open Space Element and the Important Farmlands Inventory Map. The designation has been applied to approximately 70 acres of land located north of Bard Lane and east of Ventura Avenue.

8. Floodplain - Lands adjacent to the Ventura River which have been designated as "Floodplain" are generally not appropriate for urban uses until a Floodplain ordinance is adopted. The areas designated as the 100 Year Floodplain are based on the Flood Insurance Rate maps prepared for the United States Department of Housing and Urban Development's Federal Insurance Administration. It is recognized that these maps are still in the preliminary stage. When final maps are approved and a Floodplain ordinance is adopted, the boundaries of the 100 Year Floodplain shall be reviewed, and if necessary amended. In the interim, the Floodplain boundaries shown on the Land Use Element map will be used for planning purposes.

   The underlying land use designations outside the floodway but within the 100 Year Floodplain are "Industrial," generally located north of Shell Road or south of Gosnell Bend, and "Oilfield Industrial," generally located north of Gosnell Bend and south of Shell Road.

   County Policy:

   New industrial or oilfield industrial development or an expansion of existing industrial or oilfield industrial development may occur only if it can be shown through additional analysis that such areas will be protected from a 100 year flood.

NORTH AVENUE PLAN

ZONING COMPATIBILITY MATRIX

COUNTY OF VENTURA ZONES

PLAN MAP LAND USE DESIGNATIONS	O-S (10 AC. MIN.)	A-E (40 AC. MIN.)	R-A (1 AC. MIN.)	R-E (10,000# MIN.)	R-O (20,000# MIN.)	R-1 (6,000# MIN.)	R-2 (3,500#/DU)	R-P-D	P-C	T-P	C-O	C-I	C-P-D	M-1	M-2	M-3
RESIDENTIAL - SINGLE FAMILY				○		○		7U								
RESIDENTIAL - MULTIPLE FAMILY								13U								
COMMERCIAL												○	○			
INDUSTRIAL															○	○
OILFIELD INDUSTRIAL	○														○	○
FLOOD PLAIN	○	○													○	○
AGRICULTURE	40 AC.	○														

NOT COMPATIBLE WITH PLAN

COMPATIBLE WITH PLAN

7U — COMPATIBLE ONLY WITH ZONE SUFFIX EQUAL TO OR MORE RESTRICTIVE THAN THAT SHOWN (GREATER LOT AREA OR LOWER DENSITY)

FIGURE 3

FIGURE 4

NORTH AVENUE PLAN

BIKEWAYS

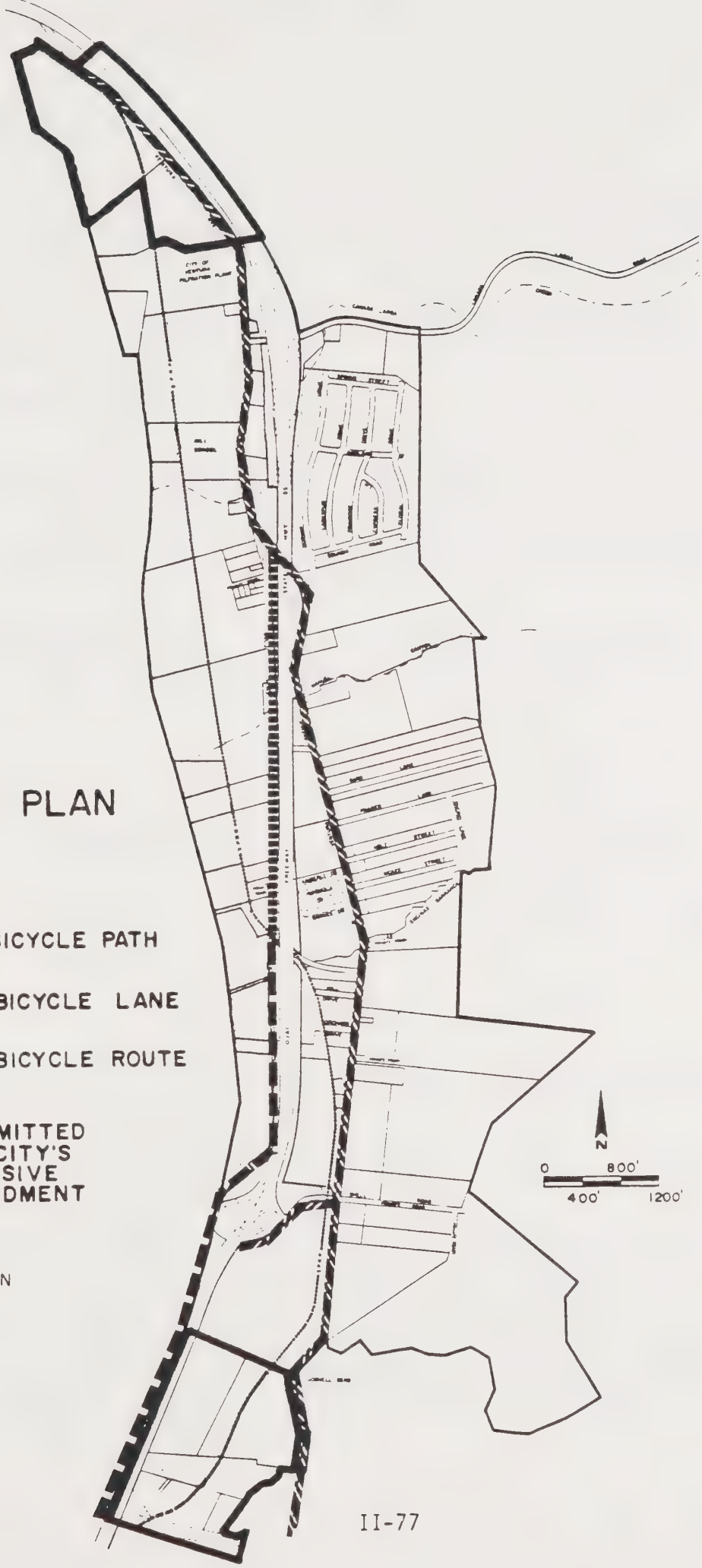
CLASS I BICYCLE PATH

CLASS II BICYCLE LANE

CLASS III BICYCLE ROUTE

PARCELS OMITTED FROM THE CITY'S COMPREHENSIVE PLAN AMENDMENT

SOURCE: VENTURA COUNTY PLANNING DIVISION



City Policy:

An expansion of existing industrial or oilfield industrial urbanization may occur only if it can be shown through additional analysis that such areas are currently protected from a 100 Year flood.

Any flood protection measures necessary to protect existing development in the Floodplain shall minimize adverse impacts and changes to the river channel.

B. OTHER LAND USE ELEMENT POLICIES

1. Zoning Compatibility Matrix (See Figure 3) The Matrix identifies zones in the Ventura County Zoning Ordinance which are consistent with the North Avenue Plan. After adoption of the North Ventura Avenue Plan, the County shall pursue a rezoning program to bring the zoning of the area into conformance with the General Plan, as required by State law.

2. Review Procedures - The County shall notify the City regarding development applications. Specific notification shall be given to the City by the County at the following points:

   a. Pre-application meeting

   b. Application review period

   c. New case committee meetings (application completeness and environmental determination)

   d. Development Advisory Committee meetings and permit hearings

   e. Environmental document hearings

   f. Notification of final decision

   Project applicants shall be requested to contact both the County and the City for discussion of projects as early as possible in the design phase of the proposal.

3. Development Standards - The Plan would require all ministerial projects (those requiring only a zone clearance) to meet the development standards established by the County of Ventura's Zoning Ordinance Code. However, discretionary projects (those requiring a Planned Development Permit, Conditional Use Permit, etc.) in the North Avenue Community, shall conform to this Plan and the County and City development standards (if there is a difference in the standards between the two jurisdictions, the more stringent of the two standards shall apply). "Standards," as used above, involve conditionally permitted uses, parking requirements, signs, building setbacks, lot coverage, landscaping and building height.

Facilities such as streets, bikeways, secondary drainage facilities, and water systems shall conform to the development standards of the City of Ventura as of the adoption of this plan, or as may be subsequently amended by the City and approved by the County.

4. Water Policy Procedures - Water service shall be provided by the City to the North Ventura Avenue Community (within its Sphere of Influence), subject to the provisions of the City's Water Policy (see City policy resolution No. 82-151 in Appendix). Development proposals shall receive a "Preliminary Will Serve" (water availability) letter from the City prior to filing planning applications with the County. The provision and/or expansion of water systems shall meet the City's standards.

   Applications which do not contain a "Preliminary Will Serve" letter will be considered incomplete After obtaining all appropriate County approvals, applicants pursuing development will enter into a "Water Service Agreement" with the City and the City will then issue a "Final Will Serve" letter.

5 General Plan Amendments - Amendments to the North Ventura Avenue Area Plan should be processed and approved by both the City of San Buenaventura and the County of Ventura.

6. Industrial Buffering - New or expanded industrial development in either of the industrial designations which is adjacent to residential areas shall provide buffers to adequately protect residential areas from any intrusion or nuisance factors generated by the industrial development. Industrial uses adjacent to the Ventura River (which is an anadromous fish stream), shall be compatible with the goal of preserving the natural attributes of the River, and development should not be permitted which would result in its degradation.

7. Barrancas - The Canada Larga, Manuel Canyon and Las Encinas Barrancas are subject to periodic flooding and erosion, but are also part of the visual quality and character of the area. As the Community develops, the visual importance of these open, natural watercourses will increase. Development adjacent to the barrancas should be reviewed on a case-by-case basis so as to retain the watercourses in as natural a state as feasible, given the erosive nature of the channels and potential flooding considerations.

8. Collector Streets - Ventura Avenue and Crooked Palm Road should be designated as collector streets, and a future collector street extending from Floral Drive to Shell Road should be considered. (The circulation system is also reflected on the City's "Circulation Element" (Appendix F).

9. Bikeways - A Class II Bikeway along Ventura Avenue, a Class III bikeway along Crooked Palm Road, and the Ojai/Ventura River Class I Bike Path as shown on the "Bikeways Map" (Figure 4), should be established. (The Bikeway system is also reflected on the City's "Select System of Bikeways" (Appendix G).

10. Scenic Approach - A "Scenic Approach" is established in the area of Ventura Avenue and Canada Larga Road The purpose of this designation would be the protection of aesthetic views of the surrounding area that could include topography, vegetation, panoramas, natural and manmade features. Through discretionary permit conditions, view protection measures should consist of preventing obstruction of views by means of landscaping, grade differences or fences, limiting signs and outdoor advertising, and the undergrounding of utility lines (Scenic Highway considerations are also reflected on the City's "Scenic Highways Element" [Appendix H]).

11. AQMP Implementation Program - The City has adopted an Air Quality Management Program as part of its Comprehensive Plan. The City's AQMP Implementation Program applies to all residential construction in the Growth Area of the City's which includes the North Avenue Community. According to the City's AQMP Implementation Program, all residential Projects must comply with the AQMP in order to receive City water service. Project applications which do not comply with the City's AQMP Implementation Program will not be issued "Preliminary Will Serve Letters" by the City and, therefore, the permit applications will be found incomplete by the County.

APPENDIX A

RESOLUTION NO. 82-151

A POLICY RESOLUTION FOR THE COORDINATION OF CITY AND COUNTY DEVELOPMENT REVIEW FOR PROJECTS LOCATED IN THE NORTH AVENUE COMMUNITY

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1 - PURPOSE: The City Council finds that the policies contained in the Intent and Rationale Statements for the North Avenue Community and the City Water Policy require that development in the North Avenue meet and conform to the City's Comprehensive Plan policies, including Phasing and Air Quality Management Plan Implementation Program, as well as zoning and subdivision requirements. In order to ensure timely development review and implementation of these policies, a mechanism for coordinated City and County review is necessary.

SECTION 2 - REVIEW PROCEDURES: The existing system of County notification to the City as specified in County Planning Division Policies and Procedures Manual Policy/Procedure No. 4.1 is appropriate and should be continued, with specific notification given to the City at the following points:

A. Pre-application meeting (if one is necessary);

B. Application review period;

C. New case committee meetings (application completeness and environmental determination);

D. Development Advisory Committee meetings;

E. All other points where notice is now required by Procedure No. 4.1.

Project applicants shall be requested to contact both the City and the County for discussion of projects as early as possible in the design phase of the proposal.

SECTION 3 - WATER POLICY APPLICABILITY: Water service will be provided to the unincorporated, subject to the provisions of the Water Policy. Development proposals shall receive a "Will Serve Letter" from the City prior to filing planning applications with the County. Applications which do not contain valid "Will Serve Letters" will be considered to be incomplete applications. After receiving all appropriate County approvals, landowners pursuing development will enter into a Water Service Agreement with the City.

not already fixed by prior development. In order that application of standards and conformance to City criteria be consistent, City review of Land Development proposals and County recommended conditions of approval will be done pursuant to Section 2 of this resolution.

Cumulative development may create roadway deficiencies beyond developing areas. Deficiencies shall be mitigated as they occur unless the deficiencies can be anticipated and an area of benefit established.

PASSED AND ADOPTED this 13th day of December, 1982.

City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 13th day of December, 1982, by the following vote:

AYES: Councilmembers Sullard, Longo, Chaudier, Henson, Monahan, Orrock, and McWherter.

NOES: None.

ABSENT: None.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 14th day of December, 1982.

City Clerk

LEISURE HILLS PROPERTIES COMPONENT:

That the AMENDMENT of the Open Space and Land Use Elements (Leisure Hills Properties), be DENIED.

BE IT FURTHER RESOLVED, that the Board of Supervisors of Ventura County acknowledges that the following area plans (a part of the Land Use Element of the General Plan), continue to be operative, as of this date:

1. Piru Area Plan (adopted November 19, 1963, and subsequently amended);
2. Saticoy Community Plan (adopted September 21, 1967);
3. North Half Plans (Phase I adopted July 13, 1971 and Phase II adopted February 20, 1973);
4. Ojai Valley Area Plan (adopted August 14, 1979, and subsequently amended);
5. Moorpark Community Plan (adopted December 18, 1979, and subsequently amended);
6. Local Coastal Program - Land Use Plan (adopted November 18, 1980), and subsequently amended;
7. El Rio Area Plan (adopted November 25, 1980 and subsequently amended); and
8. Simi Valley General Plan (adopted September 15, 1981).

Upon motion of Supervisor Jones, seconded by Supervisor Erickson duly carried; the foregoing Resolution is approved on this 17th day of April, 1984.

Susan K. Lacey
Chair, Board of Supervisors

ATTEST:

RICHARD D. DEAN, County Clerk
County of Ventura, State of
California and Ex-Officio Clerk of
the Board of Supervisors, thereof

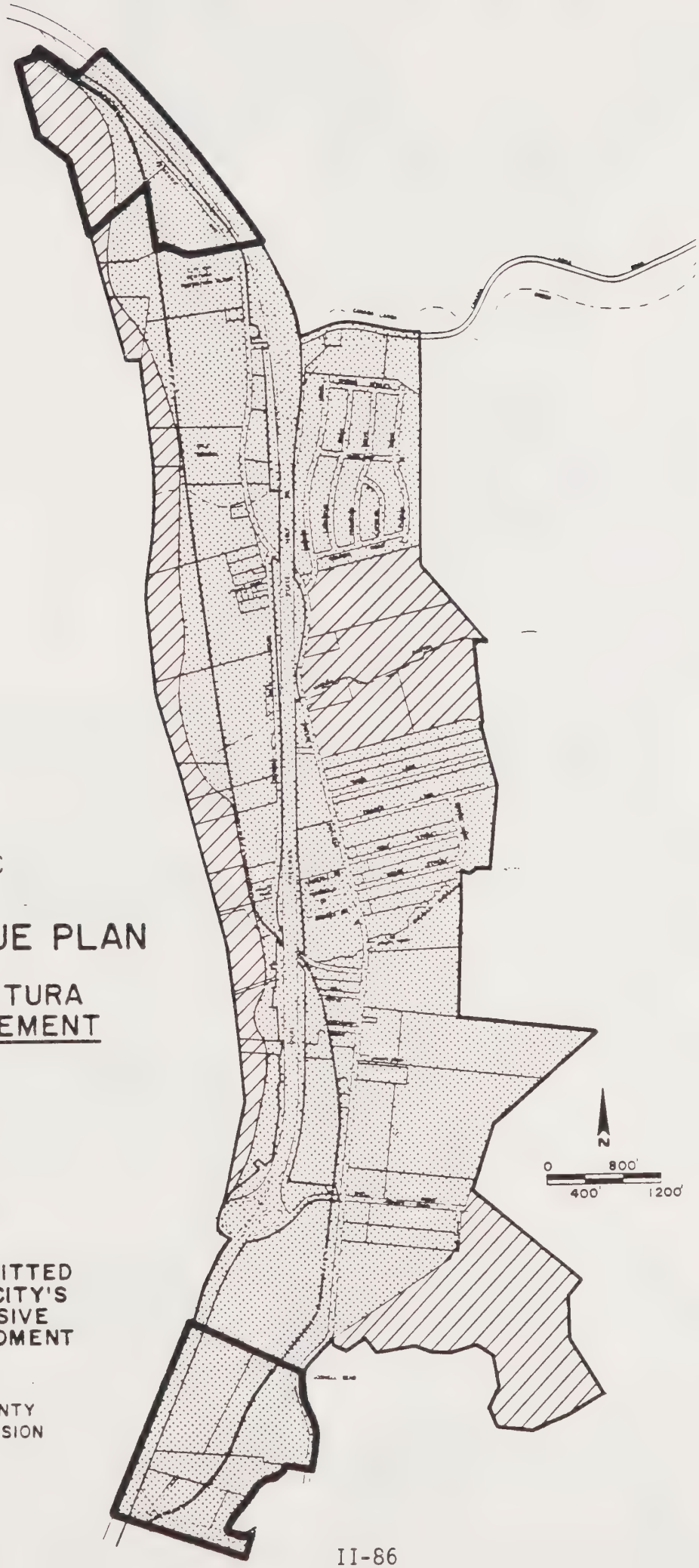
by: Shirley Weeks
Deputy Clerk

msH479

APPENDIX C

NORTH AVENUE PLAN

COUNTY OF VENTURA OPEN SPACE ELEMENT

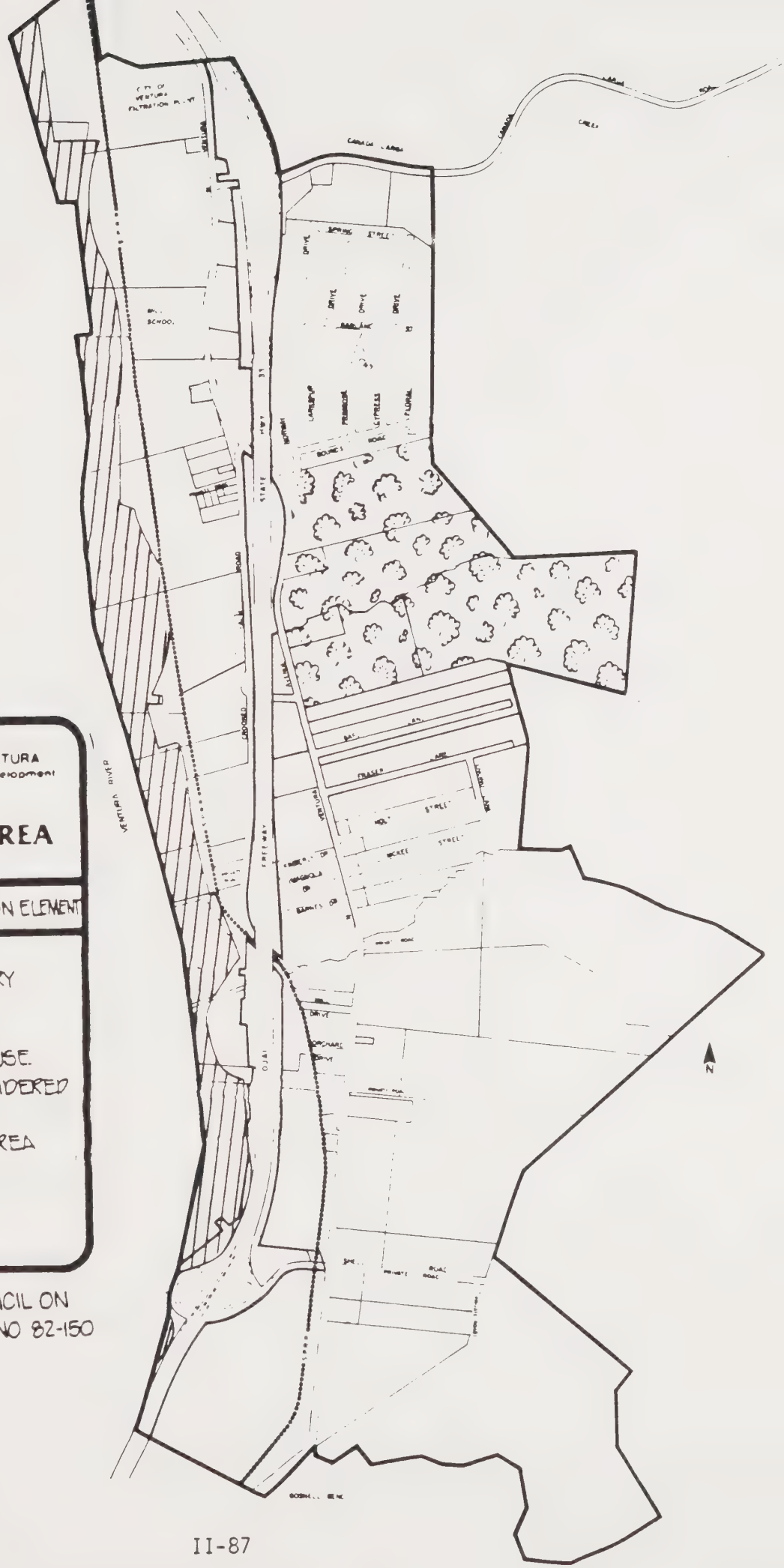


URBAN

OPEN SPACE

PARCELS OMITTED FROM THE CITY'S COMPREHENSIVE PLAN AMENDMENT

SOURCE: VENTURA COUNTY PLANNING DIVISION



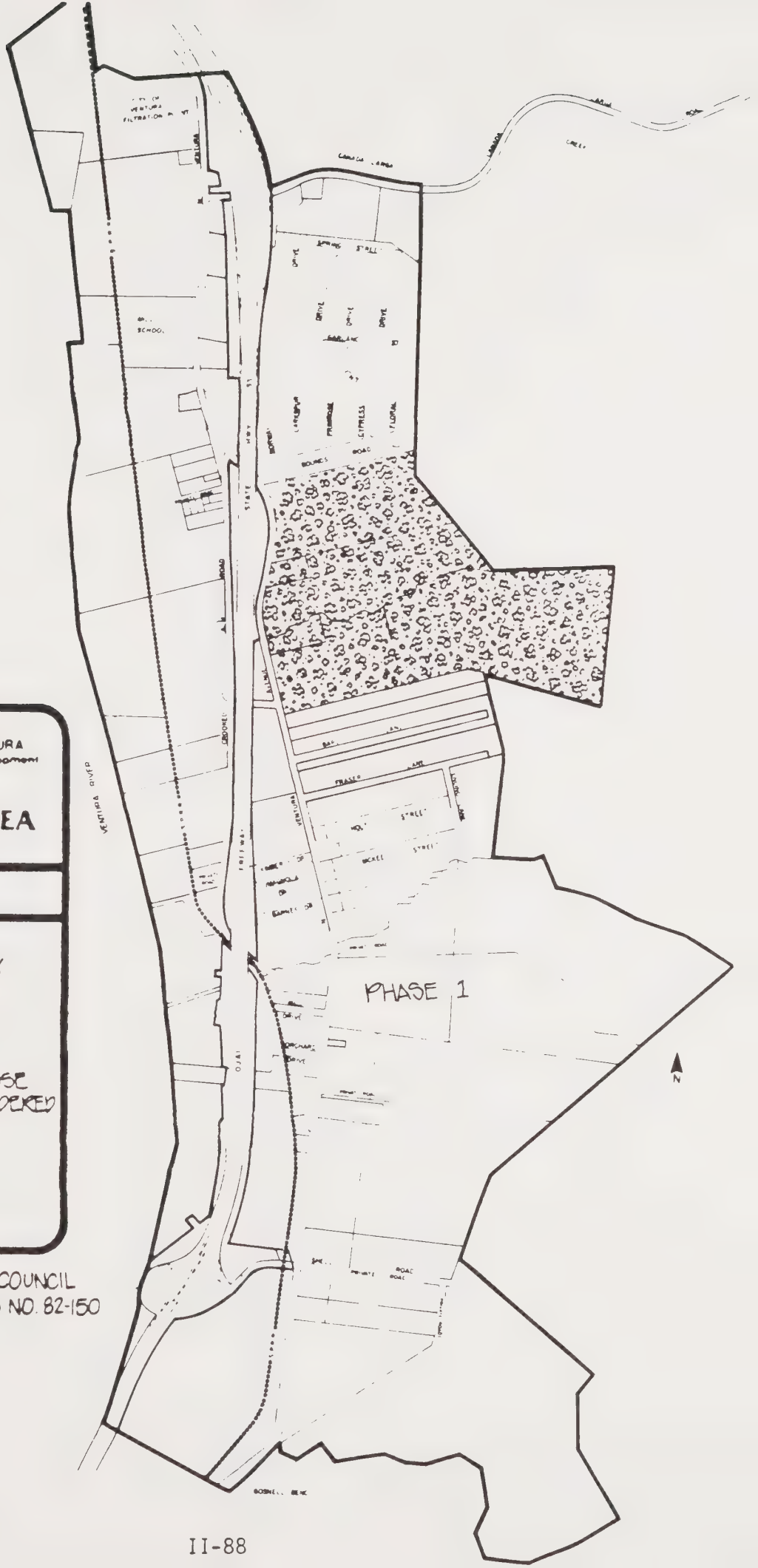
CITY OF SAN BUENAVENTURA
Department of Community Development

NORTH AVENUE AREA
APPENDIX D

OPEN SPACE & CONSERVATION ELEMENT

- AREA BOUNDARY
- PHASED URBAN
- AGRICULTURAL USE. (TO BE RECONSIDERED AFTER 1990)
- FLOODPLAIN AREA

AS ADOPTED BY CITY COUNCIL ON DECEMBER 13, 1982, RES. NO 82-150



CITY OF SAN BUENAVENTURA
Department of Community Development

NORTH AVENUE AREA
APPENDIX E

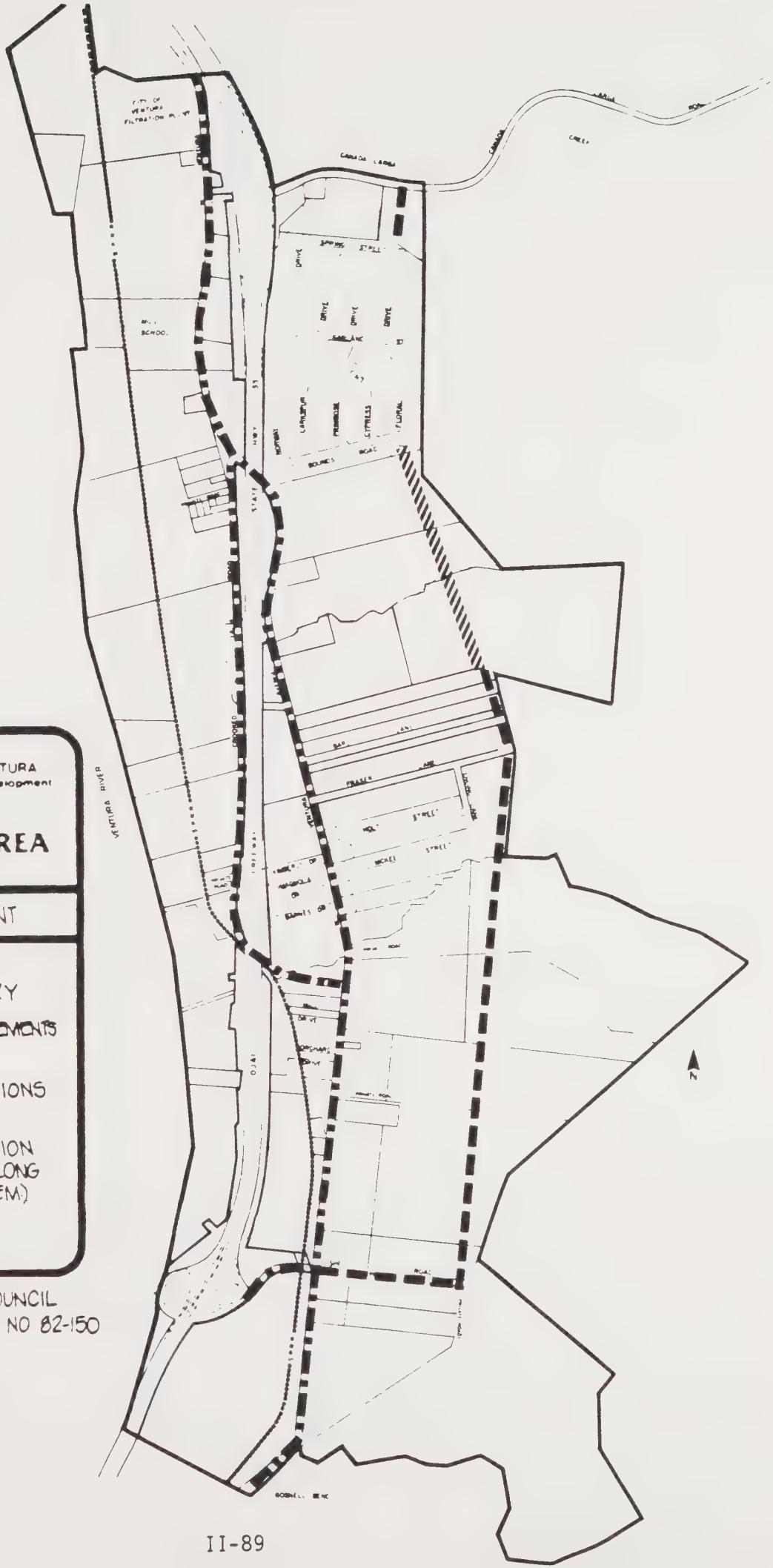
PHASING MAP

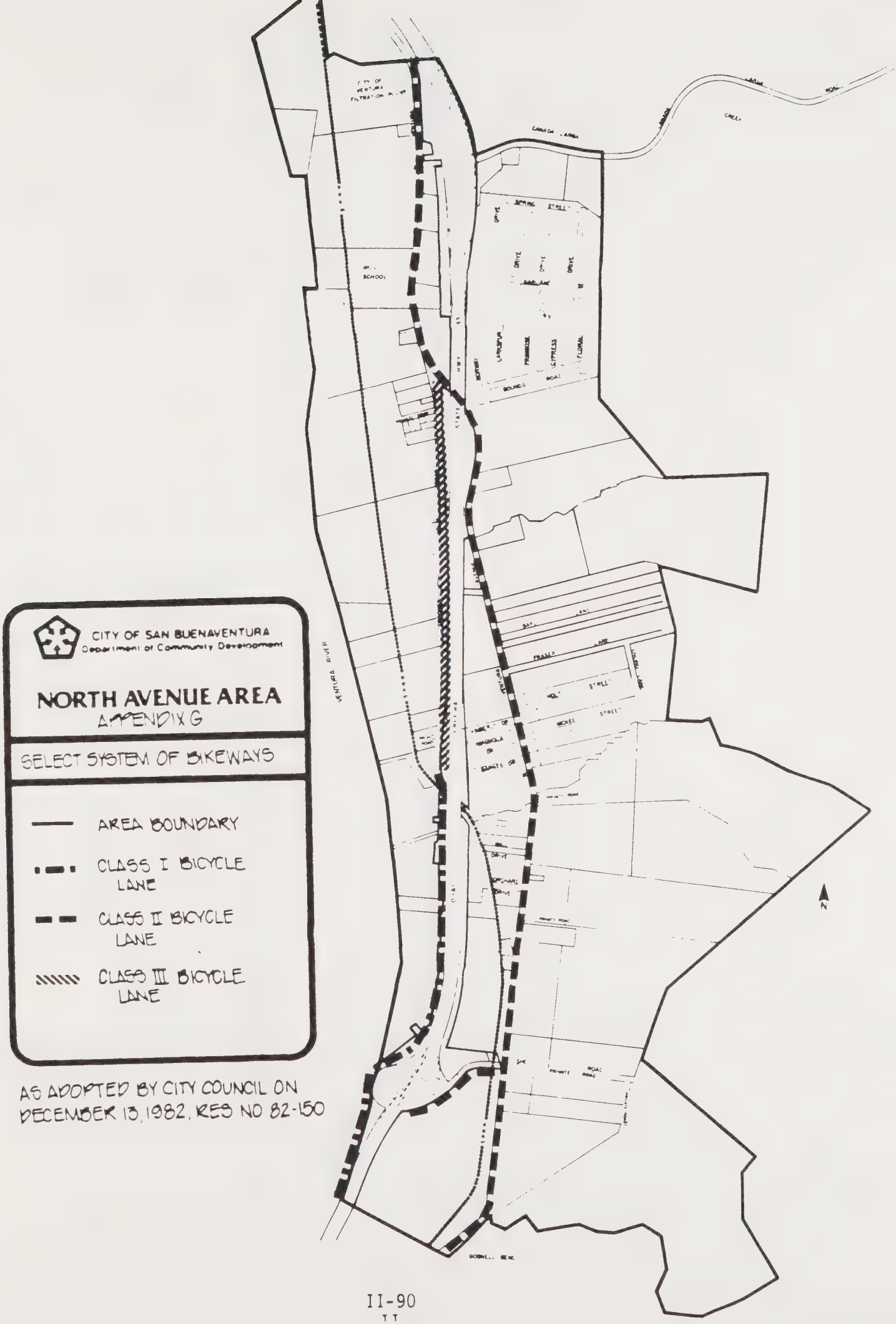
AREA BOUNDARY

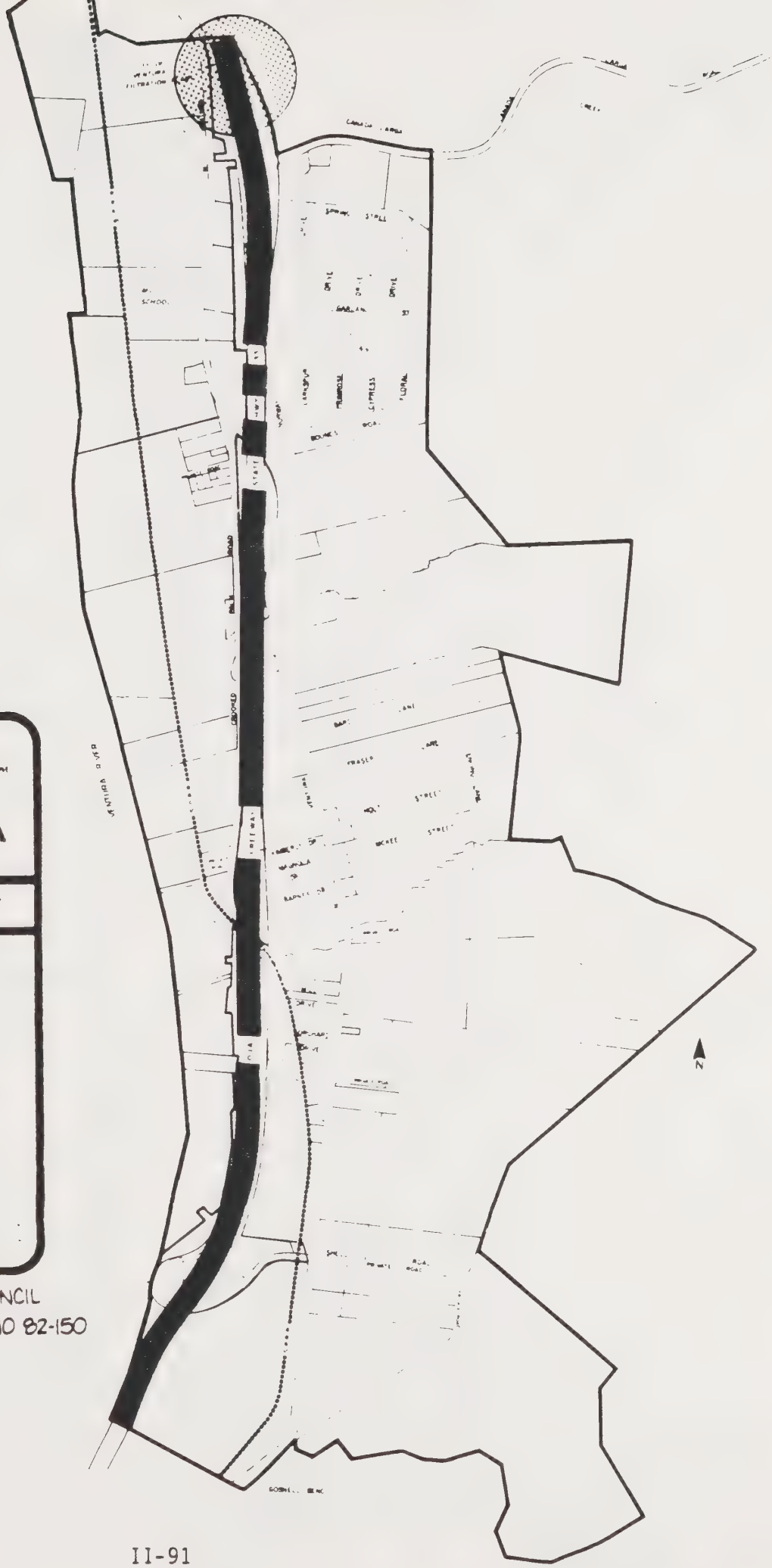
PHASED URBAN

AGRICULTURAL USE
(TO BE RECONSIDERED
IN 1990)

AS ADOPTED BY THE CITY COUNCIL
ON DECEMBER 13, 1982, RES NO. 82-150


CITY OF SAN BUENAVENTURA
Department of Community Development
NORTH AVENUE AREA
APPENDIX F
CIRCULATION ELEMENT
AREA BOUNDARY
FUTURE IMPROVEMENTS COLLECTOR
FUTURE EXTENSIONS COLLECTOR
FUTURE EXTENSION COLLECTOR (LONG RANGE SYSTEM)
AS ADOPTED BY THE CITY COUNCIL ON DECEMBER 13, 1982, RES NO 82-150
VENTURA RIVER
N


CITY OF SAN BUENAVENTURA
Department of Community Development
NORTH AVENUE AREA
APPENDIX G
SELECT SYSTEM OF BIKEWAYS
AREA BOUNDARY
CLASS I BICYCLE LANE
CLASS II BICYCLE LANE
CLASS III BICYCLE LANE
AS ADOPTED BY CITY COUNCIL ON DECEMBER 13, 1982, RES NO 82-150
VENTURA RIVER
N



CITY OF SAN BUENAVENTURA
Department of Community Development

NORTH AVENUE AREA
APPENDIX H

SCENIC HIGHWAYS ELEMENT

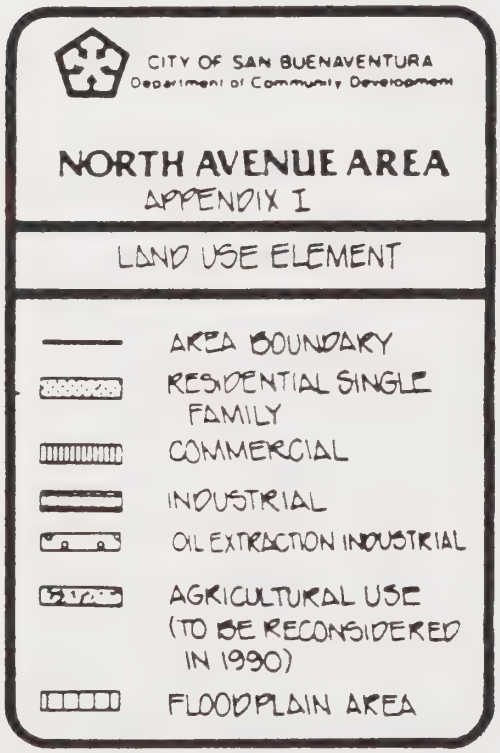
AREA BOUNDARY

ADOPTED STATE SCENIC HIGHWAY

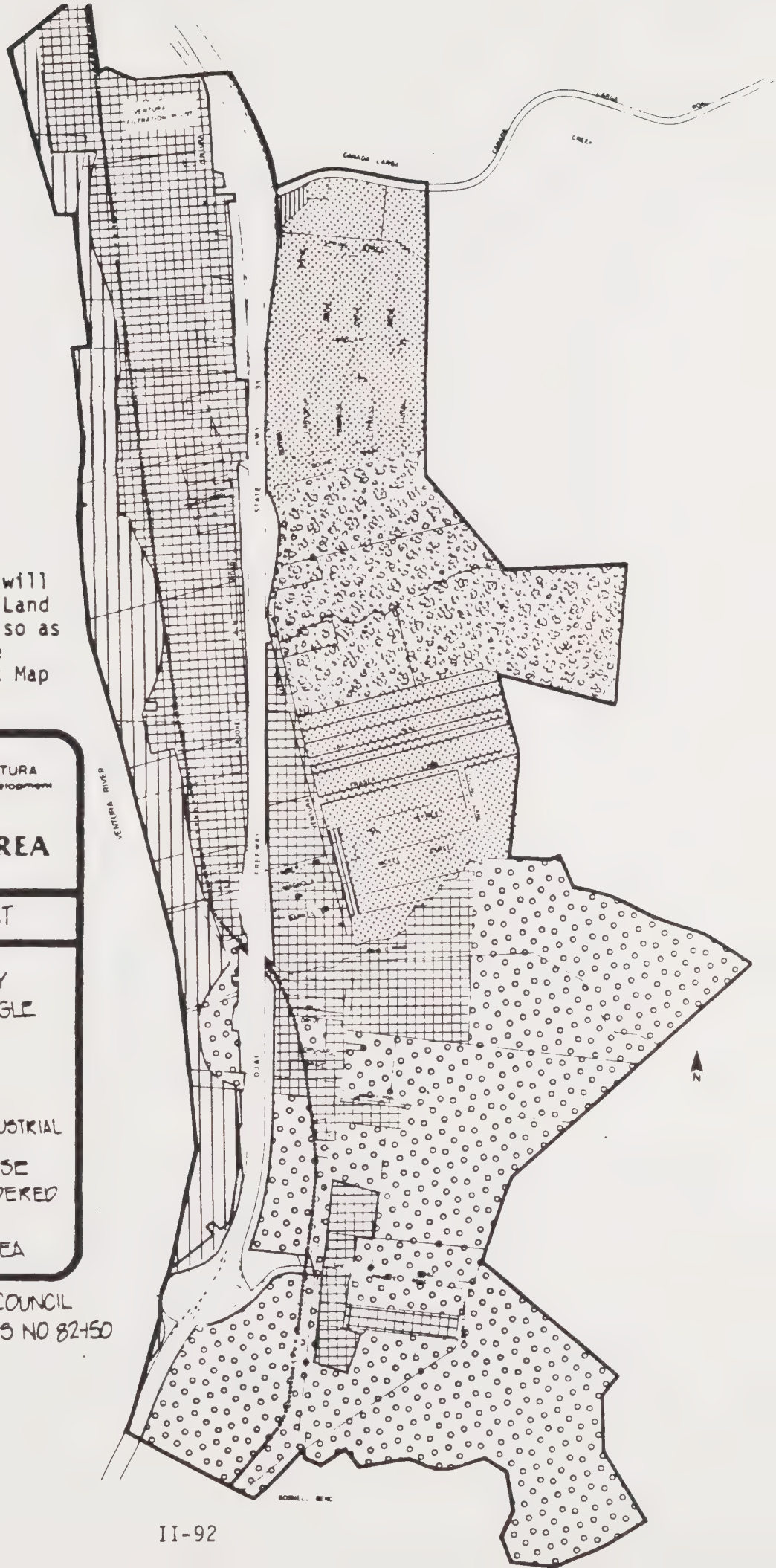
ADOPTED CITY SCENIC APPROACH

AS ADOPTED BY THE CITY COUNCIL ON DECEMBER 13, 1982, RES. NO 82-150

The Ventura City Council will consider adjusting these Land Use Element designations so as to be consistent with the County's Land Use Element Map (see Figure 2)



AS ADOPTED BY THE CITY COUNCIL ON DECEMBER 13, 1982, RES NO. 82-150



Taylor Ranch/Ventura River Area

General Character: This area consists of two distinct geographic regions, the Taylor Ranch area and the Ventura River basin, of which only a portion is under City jurisdiction. Essentially undeveloped, the major activities in the area are agricultural and recreational uses. The area includes a sensitive habitat in and around the river, and is partially located within a flood plain. The intent of the land use policies for this area is to maintain the existing open, undeveloped character of the area, preserve agricultural land uses, protect sensitive habitat areas, and minimize dangers to life and property in flood hazard areas.

Agricultural Uses: It is the intent of this plan to preserve and protect those areas designated as agricultural use from urban development. While greenhouse and other similar agricultural buildings used for crops and flower production are an agricultural use, this type of development would be permissible in this area subject to Open Space policies regarding Greenhouse Development Performance Standards, which establish criteria for development in the area. Due to the large parcel size, soil type and physical separation from the coastline by Highway 101, recreational use is not appropriate in Taylor Ranch, and the Crown Zellerbach property.

Recreation: Because of the smaller size of the Hubbard property and constraints to agricultural production, recreational uses may be permitted on this site. These uses may be permitted provided that adequate landscaping, flood plain mitigation measures, and measures to protect the adjacent sensitive habitat area are incorporated. No diking or levee facilities shall be permitted.

Parks: Emma Wood State Beach Park General Development and Resource Management Plan, as adopted by the State Parks Commission, shall be incorporated into the City's Local Coastal Program and development of the Park shall proceed in accordance with that Plan. Development of the day-use and overnight camping facility should incorporate measures to minimize flood hazards. Development within Hobo Jungle shall be limited to nature study purposes and passive recreation. Nature study and interpretive opportunities in Hobo Jungle shall be coordinated with facilities in Emma Wood State Beach. Should development and management of Hobo Jungle by the City be feasible, the City should coordinate with the State Department of Parks and Recreation regarding development, management, and future ownership.

Sensitive Habitat: The intent of the Sensitive Habitat designation is to protect habitats which support the vegetative and animal species in the area from Urban disturbances. All development in the area surrounding the Ventura River sensitive habitat area shall be reviewed to mitigate any potential impacts on the area. Development within the Ventura River sensitive habitat area shall be subject to the following criteria:

1) The area shall be retained in as natural a state as possible. Development proposals shall be designed to enhance and restore the natural habitat values of the area whenever possible. In Hobo Jungle, the effort should include methods of protecting and

restoring the existing grove of Monterey Cypress trees or replacing these trees with native species appropriate to the location and site conditions.

2) Activities shall be limited to passive recreation, nature study, and educational and scientific research.

3) Development shall be limited to facilities necessary to the functioning of the allowable activities (e.g., trails, blinds); no buildings shall be allowed.

4) Access to the area shall be limited to foot traffic and non-motorized vehicles, except for maintenance vehicles. Fencing, signage and other measures shall be used, where appropriate, to inform the public of the sensitive habitat and the need for restricted access.

5) Any development surrounding the sensitive habitat area shall be suitably set back and buffered from the habitat area. Definition of the habitat areas identified, located and mapped shall be those found in the Sensitive Habitat section herein. Any development surrounding the Sensitive Habitat areas shall be set back and buffered from the habitat area. This buffer shall extend at least 100 feet in depth from the sensitive habitat overlay boundary shown on Map 12. Because the sensitive habitat overlay boundary is not the result of precise mapping, the precise location of the furthest extent of sensitive habitat and riparian vegetation from which the minimum 100-foot buffer would be measured shall be established prior to the approval of any permits for development proposals adjacent to habitat areas, consistent with recommendations from the State of California Department of Fish and Game. In no case shall development (including agricultural development) be allowed to encroach closer than the current location of the western edge of the access road north of Main Street, as shown in Map 12. On the Emma Wood State Beach property, the buffer area shall be coterminuous with the western edge of the area identified as "nature study area" on Map 1 of the LCP as part of the Emma Wood State Beach General Development Plan and Resource Management Plan adopted by the California Parks Commission in July 1976 in response to Coastal Permit 25-78, and incorporated into the City's LCP as Exhibit C.

Uses within the buffer area shall be limited to agricultural activities, recreation, nature study, and educational and scientific research. No structures shall be permitted. Access to the beach from any recreational development on the Hubbard Property shall be obtained via Emma Wood State Beach. Fences and signs to restrict access into the buffer and sensitive habitat areas will be required for any recreational development on the Hubbard Property."

6) In order to protect the anadramous fish run in the Ventura River and the biological productivity of the Ventura River lagoons and sensitive habitats, the City shall consider effects of all of its actions affecting the Ventura River in order to assure the maintenance of adequate flows within the river to maintain in-stream flows as well as stream productivity within the coastal zone. Developments shall not adversely impact the water supply groundwater levels, or water quality of the river within the coastal zone. The potential impacts shall be evaluated and mitigated as required in conjunction with environmental review procedures for a particular project, in a manner not inconsistent with any determination of the State Water Resources Control Board.

7) Steam alterations will be permitted for the purpose of exercising water rights to irrigate agricultural lands. Such alterations shall be guided by and incorporate the following principles and mitigation measures:

   a) Stream alterations shall minimize the disruption of riparian vegetation.

   b) Stream alterations shall be conducted in a manner which will minimize downstream sedimentation through the use of such techniques as at-grade culverts for repeated stream crossings; silt curtains; silt catchment basins; use of indigenous construction materials.

   c) Stream alterations made for the purposes of diverting flow for water shall utilize the existing low flow channels whenever possible.

   d) All flows from stream diversions returned to the stream shall be routed back into the original low flow channel; where there are multiple or braided channels downstream of the diversion, the channel possessing the greatest wildlife value shall be used, as determined in consultation with the State Department of Fish and Game.

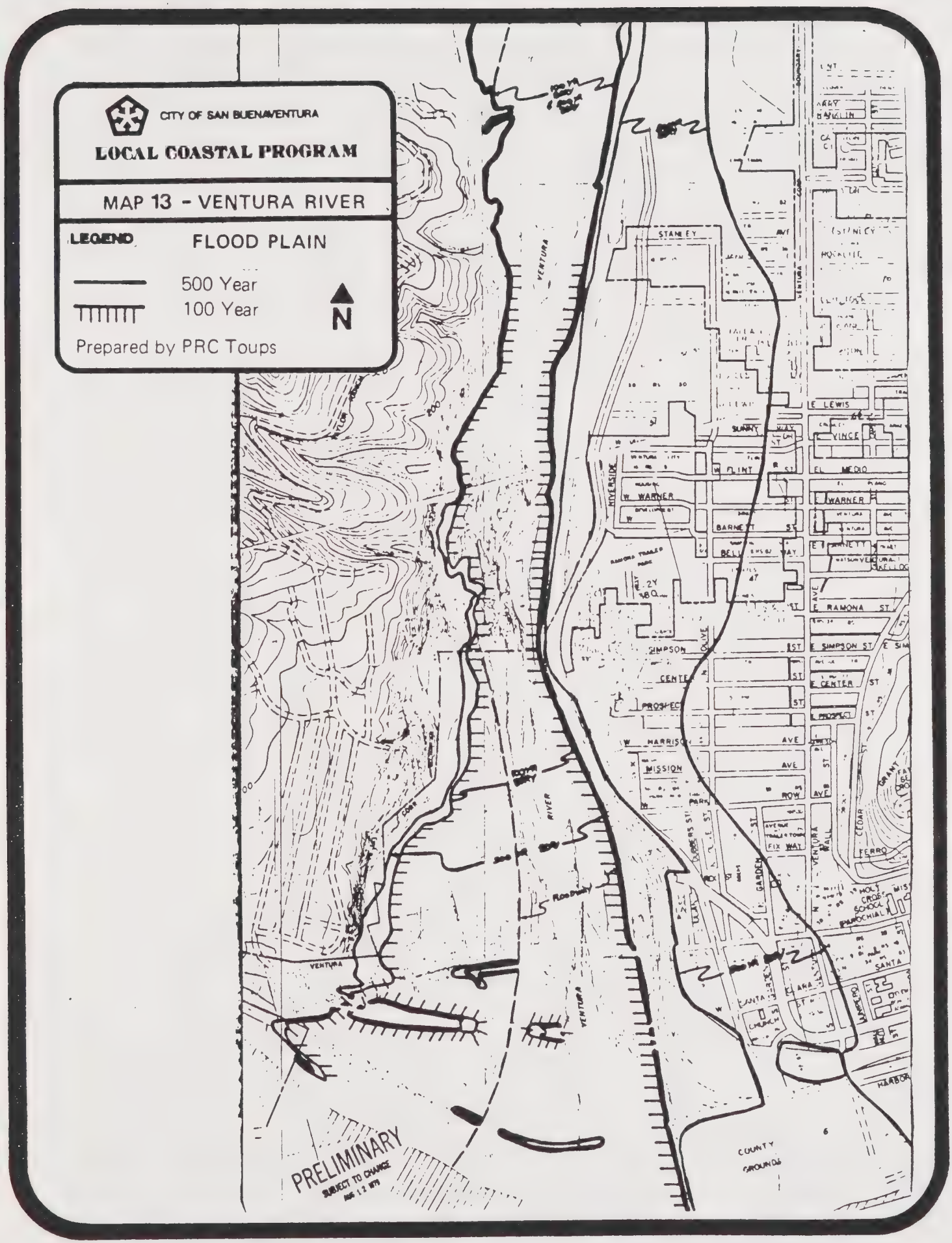
   e) All water diversion intakes shall be screened with a minimum mesh of one-fourth inch to prevent the induction of fish.

   f) Return or excess flows shall be routed back into the stream in such a manner as to provide for the unimpeded passage of fishes, both upstream and downstream of the diversion. Diversions utilizing a gravel training dike shall incorporate an inclined chute of indigenous rock material. In no case shall a suspended outlet pipe or culvert be used as a spillway.

Flood Plain Area: The intent of the Flood Plain designation is to minimize the risk to life and property in areas subject to flooding. Until a flood plain ordinance and management program is developed and adopted by the City, no development, including active recreational uses (e.g., camping), or new buildings associated with agricultural uses, shall be allowed. These policies shall not apply to the Hubbard Property, Parcel No. 60-320-28. Refer to the Hazards section for policies relevant to this property.

This does not imply that such uses will be allowed upon adoption of a flood plain ordinance. Rather, it is intended that uses allowed within the 100-year flood plain shall be compatible with both a flood plain ordinance and the underlying land use designation.

Energy Facilities: The Ventura River basin area contains a former saltwater pump station, oil pipelines, and undeveloped oil drilling sites. Due to the proximity of these facilities to recreation and sensitive habitat areas, no new energy or industrial facilities, except for pipelines, shall be located between Highway 101 and the shoreline. However, no such facilities shall be allowed within a Sensitive Habitat area. Oil pipelines will be allowed to cross the portion of Ventura River located within the coastal zone even though it will pass through a sensitive habitat area. Mitigating measures, such as shut-off valves, should be incorporated to provide environmental protection.


CITY OF SAN BUENAVENTURA
LOCAL COASTAL PROGRAM
MAP 13 - VENTURA RIVER
LEGEND
FLOOD PLAIN
500 Year
100 Year
N
Prepared by PRC Toups
PRELIMINARY
SUBJECT TO CHANGE
STANLEY
E LEWIS
VINCE
W FLINT
EL MEDIO
W WARNER
E WARNER
BARNETT
E RAMONA ST
SIMPSON
E SIMPSON ST
CENTER
E CENTER
PROSPECT
W HARRISON
MISSION
ROW
FIX WAY
GARDEN
VENTURA
RIVER
COUNTY
GROUNDS
HARBOR

SECTION D

PHASING PROGRAM POLICIES

1. ALL THOSE PARCELS THAT ARE NOT DESIGNATED AS BEING IN THE AGRICULTURAL USE CATEGORY ON THE ADOPTED OPEN SPACE MAP ARE HEREBY DESIGNATED AS BEING IN EITHER "PHASE I - CENTERS", "PHASE I - NEIGHBORHOOD", "PHASE I - HILLSIDE", "PHASE II - NEIGHBORHOOD", "PHASE III - NEIGHBORHOOD", "PHASE III - HILLSIDE", "NEW AGRICULTURAL LAND" AND/OR "SPECIAL STUDY AREAS" ON THE ATTACHED PHASING MAP.

   Explanation: Phasing policies will apply to all parcels which are currently designated as "phased urban" on the adopted Open Space Map. In addition, these policies will apply to small parcels shown as "existing urban" on the Open Space Map. Applications for proposed development in a given phase will not be accepted until that phase is officially opened. Exceptions to these policies are contained in the section entitled "Exemptions from Phasing Provisions."

2. "PHASE I - CENTERS" PARCELS ARE AVAILABLE FOR IMMEDIATE DEVELOPMENT, IN ACCORDANCE WITH ALL APPLICABLE CITY ORDINANCES AND POLICIES.

   Explanation: An analysis of the Neighborhood, Regional Centers, and the Downtown/Hillside Concept, in conjunction with data in the Land Use Workbook and Community Profiles, has shown that the City should attempt to concentrate its development and capital resources in accordance with the Regional Centers Concept. (See Rationale Section, "Land Use/Circulation Plan: Phasing Program," June 1976, for complete explanation.)

3. "PHASE I-NEIGHBORHOOD" AND "PHASE I - HILLSIDE" PARCELS WILL NOT BE AVAILABLE FOR IMMEDIATE DEVELOPMENT BUT MUST AWAIT THE ADOPTION OF CAPITAL IMPROVEMENT AND FUNDING PROGRAMS SPECIFICALLY DEVELOPED FOR EACH OF THESE PHASES. THE "PHASE I - HILLSIDE" AREA MUST ALSO AWAIT THIS ADOPTION OF A HILLSIDE MANAGEMENT PLAN AND ORDINANCE BEFORE DEVELOPMENT WILL BE ALLOWED.

   Explanation: It is the specific purpose of the Phasing Program to have the great majority of the City's Capital Improvement monies spent in the Phase I-Centers area, where the greatest concentration of population and deficiencies exist. Private development will not be allowed to take place in the Phase I-Neighborhood and Hillside areas until all the costs associated with providing necessary public facilities to these areas have been identified and, more importantly, a capital improvement and financing program has been established. The Land Use Workbook and Community Profiles have already identified existing deficiencies in the planning area, and it will be necessary for each City Department to further refine the work already completed by establishing preliminary work programs and cost estimates for eliminating these deficiencies, as well as additional deficiencies which may occur as a result of planned development.

It must be understood that the funding approach recommended in this policy is quite different from the one that presently exists, which normally requires the developer to pay only for on-site and off-site improvements necessary for the development of a specific parcel. The proposed policy is intended to meet the needs of a large geographic area, such as a community, and requires that a program exist to mitigate existing and projected deficiencies throughout the community prior to or in conjunction with continued development in that community.

For example, one method would be to establish a funding mechanism (i.e., assessment district), whereby the costs of eliminating all the deficiencies are allocated by an equitable method to those properties yet to be developed that would benefit from the eliminat on of the deficiencies. By equitable, it is meant that these existing undeveloped properties should not have to bear the full burden of the improvements necessitated by previous development. In some cases, it may be necessary to tax developed properties, in order to provide the needed urban services such as parks and schools. On the other hand, the City may choose to participate through grants or other funding sources that would not diminish the Capital Improvement Budget for the Phase I-Centers area.

All in all, a number of financing methods may have to be used to eliminate the deficiencies (e.g., assessment districts, participation areas, a one-time tax levied on all developed and undeveloped properties, creation of a Parks and Recreation District, etc.). The main intent of this policy is to have those areas outside of the Phase I-Centers area provide the required capital improvement projects within each area. The only other alternative, if the City is to have an effective phasing program, is to not allow development in such areas until such time as the City has alleviated deficiencies in the Phase I-Centers area, and has sufficient funds to solve problems in the Phase I-Neighborhood and Hillside areas. It should be noted, however, that this program is not intended to preclude the City, County, School District, or other Governmental Agencies, from providing <u>necessary</u> services or improvements to the already existing population outside of the Phase I-Centers area.

4. "PHASE I - NEIGHBORHOOD" WILL BE MADE AVAILABLE FOR DEVELOPMENT SIX MONTHS AFTER THE ADOPTION OF THIS PLAN, WHETHER OR NOT A CAPITAL IMPROVEMENT AND FUNDING PROGRAM HAS BEEN DEVELOPED FOR THAT PHASE BY THAT TIME.

   Explanation: In order to expand the inventory of available land for single-family housing in the City, it is necessary to establish a specific date for the opening of the Serra Community.

5. URBAN DEVELOPMENT WILL BE CONSIDERED IN THE "PHASE II - NEIGHBORHOOD" (JUANAMARIA) and "PHASE III - NEIGHBORHOOD" (WELLS AND SATICOY SUBAREA 2) AREAS AFTER THE CAPITAL IMPROVEMENT AND FUNDING PROGRAMS HAVE BEEN ESTABLISHED FOR THESE AREAS, AND THE CITY COUNCIL HAS MADE THE FINDING THAT ALL OR SOME PORTION OF THE PHASE II AND PHASE III PROPERTIES SHOULD BE MADE AVAILABLE FOR DEVELOPMENT SO AS TO HAVE A RELATIVELY COMPETITIVE LAND AND HOUSING MARKET AS WELL AS AN EFFECTIVE CAPITAL IMPROVEMENT PROGRAM. IN ADDITION, OPENING OF THESE AREAS WILL BE CONTINGENT UPON THE CITY COUNCIL MAKING THE FINDING THAT A SIGNIFICANT PERCENTAGE OF INFILLING HAS OCCURRED IN "PHASE I-CENTERS" AND PHASE I - NEIGHBORHOOD". THEREFORE, FOR PURPOSES OF CONSIDERING FUTURE DEVELOPMENT IN THE JUANAMARIA, SATICOY AND WELLS COMMUNITIES, THE NUMERIC PHASING DESIGNATIONS WILL NO LONGER BE USED. THE PUBLIC IMPROVEMENT DEFICIENCIES IN EACH COMMUNITY WILL BE USED IN MAKING THE DETERMINATION OF WHICH AREA SHOULD BE ALLOWED TO DEVELOP FURTHER.

   Explanation: In 1983, the City Council approved the opening of Saticoy Subarea I. Given this action, the Phase II-Neighborhood (Juanamaria) and Phase III-Neighborhood (Wells and Saticoy Subarea 2) should be given equal consideration in determining possible urbanization. A finding is no longer required that significant percentage of infilling of Phase II has occurred before Phase III can be opened."

6. POLICIES RELATING TO PHASE II-HILLSIDE AND PHASE III-HILLSIDE AREAS SHALL BE AS PROVIDED IN THE HILLSIDE MANAGEMENT PROGRAM.

   Explanation: The Hillside Management Program was adopted in 1978 and is intended to supersede existing City plans and policies for the designated hillside area."

7. THE CITY WILL SUPPORT PROPERTY OWNERS IN "PHASE III" AREAS WHO WISH TO ENTER INTO "LAND CONSERVATION ACT" CONTRACTS, BUT WILL CONSIDER NEW LCA CONTRACTS FOR PHASE I AND PHASE II PARCELS ON A CASE-BYCASE BASIS.

   Explanation: LCA contracts will increase the economic viability of existing and potential agricultural operations in "Phase III" areas, by reducing property tax assessments. However, such contracts may or may not be appropriate for parcels in the Phase I and Phase II areas, where the City wishes to encourage urban development in the next five to ten years.

8. AN ADDITIONAL PARCEL IN THE POINSETTIA COMMUNITY (SHOWN ON THE PHASING MAP) SHOULD BE DESIGNATED AS "AGRICULTURAL USE (TO BE RECONSIDERED IN 1990)".

   Explanation: This parcel was recently brought under a Land Conservation Act contract, and is contiguous with existing "Agriculture Use" designated parcels.

9. DEVELOPMENT OF AVAILABLE PARCELS IN THE SPECIAL STUDY AREAS SHOULD NOT OCCUR UNLESS THE SUBJECT PROPERTY IS ANNEXED TO THE CITY OR THE COUNTY ZONING AND DEVELOPMENT REGULATIONS ARE CHANGED TO CONFORM TO THE CITY'S ADOPTED LAND USE POLICIES.

Explanation: The Special Study Areas generally identify those areas where urbanization has largely occurred in the County, and could continue to do so under present County and LAFCO policies, and existing annexation laws. This policy is the first step in correcting the problems associated with urban development occurring within the City's Planning Area and not being in conformance with City development policies.

PHASING EXEMPTIONS

I. Properties which meet all of the following criteria will be exempt from the Phasing Provisions of the Land Use Element:

   A. Property has zoning which is consistent with the land use designations set forth in this General Plan.

   B. None of the following major planning approvals are needed for development.

      1. Annexation
      2. Change of Zone
      3. Parcelization (via subdivision or parcel map)
      4. Conditional Use Permit
      5. Planned Development Permit
      6. Variance

II. In addition, where there is existing development on a parcel, and a Conditional Use Permit or Planned Development Permit is required to legalize or validate an existing non-conforming use, granting of a Conditional Use Permit or Planned Development Permit to allow continuance of the existing use shall not be precluded by the Phasing Policy.

III. Further, the Phasing Policy does not preclude amendments to existing Conditional Use Permits and Planned Development Permits which may still be considered on a case-by-case basis.

IV. Generally, no extension of time to inaugurate a use will be granted. This policy applies specifically, without limitation, to extensions of time with respect to tentative maps.

V. Building of one single-family dwelling on an existing lot of record shall not be precluded by this phasing policy.

VI. The City, County, School District, or other governmental agency will not be precluded from providing necessary services, improvements, or facilities in the phased areas.

VII. Provided, that Section IB of the foregoing shall not apply to commercial or professional office developments that the City finds to be necessary and desirable to serve existing residential development. The properties found to meet this criteria are the following.

   Serra Parcel 9
   Wells Parcels 3 and 6
   Saticoy Parcel 4

VIII. Provided, that Section IB of the foregoing shall not apply to property that is vacant, has a Future Land Use Designation of SF, is already annexed to the City and zoned for single family development, and that has a net acreage available for development which is less than four acres such that development upon said parcels would not have a significant adverse effect on the goals and purposes of the Phasing Program. Properties excepted under this provision may only develop based on their existing zoning or on an approved change of zone to single-family residential use.

IX. The following specific parcels have met one or more of the above criteria and are hereby exempted from the Phasing Policies of the Land Use Element. (See attached map for parcel identification).

Serra Community

Parcel 3 - provided all approvals remain valid
Parcel 4
Parcel 6
Parcel 8 - provided it is developed for City approved public use
Parcel 9 - provided it is developed as a professional office use

Juanamaria Community

Parcel 6

Wells Community

Parcel 2
Parcel 3
Parcel 6 - provided it is developed as a neighborhood commercial use
Parcel 9 - provided all approvals remain valid
Parcel 10 - provided it is developed as a single family development
Parcel 11
Parcel 12 - provided all approvals remain valid
Parcel 13 - provided all approvals remain valid

Saticoy Community

Parcel 1 - Provided it is developed as a single family development
Parcel 3 - provided all approvals remain valid
Parcel 4 - provided it is developed as a commercial use
Parcel 5 - provided all approvals remain valid
Parcel 6 - provided all approvals remain valid
Parcel 9 - provided it is developed for a City approved public use
Parcel 10 - provided it is developed for a City approved public use

SECTION E

HILLSIDE MANAGEMENT PROGRAM

PHASING

Objectives

A. To encourage additional residential development in Ventura's hillsides, as a part of the City's Comprehensive Plan for overall community development.

B. To relate the location and timing of future hillside development to the City's overall strategy of phased neighborhood development.

C. To achieve greater in-filling of established residential neighborhoods in the hillside area prior to permitting major northern expansion beyond existing City boundaries.

D. To direct hillside development to areas where it will have the least impact on the City's existing urban service systems, while postponing development of areas which would require major expansion of existing systems, both in the hillside and flatland areas.

E. To direct hillside development to areas which are least susceptible to geologic and other environmental hazards, as well as fire hazards, while postponing development in those areas which are more prone to such hazards.

F. To direct hillside development to areas where it will have the least impact on the natural environment of the hillside area, including such factors as scenic resources, water resources, and unique habitats.

Policies

1. The "Hillside Land Use and Phasing Map" is hereby adopted as an amendment to the Phasing Program of the Land Use/Circulation Element of the Comprehensive Plan.

2. Areas shown as "Phase I-Hillside" may be considered for immediate development, subject to all other applicable policies of the Hillside Management Program.

3. Areas shown as "Phase II-Hillside" will not be considered for development until 1985. In determining the amount, location, and timing of any future development within "Phase II-Hillside" after this date, at least the following factors shall be considered.

    A. The amount of in-filling which has occurred in "Phase I-Hillside" communities and in the "Phase 1" designated areas of the remainder of the City;

B. The costs and feasibility of providing necessary urban services (e.g., schools, water, fire protection) for additional development in this area;

C. The environmental and socio-economic trade-offs between expanded hillside development and further in-filling of flatland neighborhoods in the eastern portion of the Planning Area (i.e., Saticoy and Wells communities).

4. Areas shown as "Phase III-Hillside" shall not be considered for development until 1995.

5. The City shall not annex or provide urban services (i.e., domestic water and sewers) to any new development within the "Phase II-Hillside" or "Phase III-Hillside" designated areas until these areas have been officially opened for development. The City also encourages the rezoning of unincorporated parcels in these areas to a restrictive County open space zone (permitting a maximum of 1 dwelling unit per 40 acres). The City will support qualified property owners in "Phase II-Hillside" and "Phase III-Hillside" areas who request to enter into County Land Conservation Act contracts.

6. The City will not accept applications for development for "Phase II-Hillside" or "Phase III-Hillside" areas until the City Council has determined that such an area is available for development.

7. The Phasing Program may be changed through the General Plan Amendment process adopted by the City.

8. The City Council shall review, on an annual basis, the dates for reconsideration of Phase II-Hillside and Phase III-Hillside areas. This review shall occur as part of the Annual Community Development report process. If the City Council makes the finding that either Phase II or Phase III review dates are no longer realistic due to changes in market conditions, growth trends, or available land inventories, it may revise such phasing date to any specific date.

LAND USE

Objectives

A. To relate the number and distribution of dwelling units in future hillside developments to topographic, geologic, hydrologic, and fire hazard conditions, in order to minimize dangers to life and property.

B. To protect the natural and scenic resources of the hillside area in conjunction with future hillside development.

C. To provide a variety of housing opportunities in the hillside area.

D. To preserve the residential nature and character of established hillside neighborhoods.

E. To ensure that public access to the hillsides is not unduly restricted by future development.

Policies

1. The "Hillside Land Use and Phasing Map" is hereby adopted as an amendment to the Future Land Use Map of the Land Use/Circulation Element of the Comprehensive Plan.

2. All future residential land uses in areas designated for "Hillside Planned Residential" development shall be subject to the provisions of the "HPR" land use designation, as defined herein. The HPR designation sets forth a "slope/density" formula to be used in determining the appropriate density of development in hillside areas. In addition, this land use designation requires that any proposed project meet the project review standards and other applicable policies contained herein. Existing individual lots of record, which are incorporated and zoned for single family development, are exempted from HPR requirements.

3. The following residential density categories are established within the general "Hillside Planned Residential" classification:

   HPR-4 (Very low density) permits only large-lot hillside single-family development (minimum lot size - 10,000 sq. ft.).

   HPR-6 (Low density) permits standard-lot hillside single-family development (minimum lot size - 7,000 sq.ft.).

HPR-8 (Low density mix) permits a mix of single-family dwellings, medium-density attached dwellings, and garden apartments.

HPR-15 (Medium-density mix) permits a mix of single-family dwellings, medium-density attached dwellings, and garden apartments, at a higher overall density than HPR-8.

HPR-20 (High density mix) permits a mix of medium-density attached dwellings and higher-density residential uses, such as garden apartments.

In applying the above land use designations to specific parcels, the following slope/density formulas shall apply:

Average Natural Slope (%)	Permitted Density (units/gross acre)				
	HPR-4	HPR-6	HPR-8	HPR-15	HPR-20
0- 5.00	3.00	4.50	6.00	11.25	15.00
5.01-10.00	2.50	3.75	5.00	9.50	12.50
10.01-15.00	2.00	3.00	4.00	7.50	10.00
15.01-20.00	1.50	2.25	3.00	5.75	7.50
20.01-25.00	1.00	1.50	2.00	3.75	5.00
25.01-30.00	.50	.75	1.00	2.00	2.50
30.01 or greater	.10	.10	.10	.10	.10

Density Credit of 1 unit per 10 acres shall be given on any portion of a parcel with a natural slope greater than 30%. In calculating the average natural slope of a parcel, areas with less than 30% slope should be computed separately, and the total number of dwelling units permitted on a parcel shall be the sum of.

a) number of dwelling units for areas less than 30% slope, based on the permitted density corresponding to the average natural slope of that area, multiplied by the number of acres less than 30% slope; and

b) 1 unit per 10 acres for areas greater than 30% slope.

To ensure accurate density calculations, applicants shall provide a slope map and slope data as defined under "Planned Development Permit Requirements." Fractions of a dwelling unit shall be rounded to the nearest whole number.

The number of dwelling units permitted in "Hillside Planned Residential" designated areas may be reduced from the maximum permitted under the slope/density formula, if, based on detailed analysis of a specific site, it is found that conformance with hillside development regulations and policies precludes development of the maximum number of units.

4. The "cluster development" concept shall be encouraged as a means of preserving the natural appearance of the hillside, and maximizing the amount of usable open space in low-density mix (HPR-8), medium-density mix (HPR-15), and high-density mix (HPR-20) hillside development. Under this concept, dwelling units are grouped on the more level portions of the site, while steeper areas are preserved in a natural state.

   Cluster development projects shall be permitted in areas designated HPR-8, HPR-15, and HPR-20, provided that:

   a) In cluster developments containing attached dwelling units, the design of the project shall include level open space areas (less than 5% slope) for recreational use, in addition to natural state areas.

   b) The project shall be designed to minimize the visual impact on adjoining residential areas.

5. Density allocations under the "HPR-4" and "HPR-6" designations may be transferred from steeper slope areas (i.e., greater than 30% slope) to less steep slope areas, provided that the established minimum lot size is maintained.

6. All areas preserved in a natural state shall be subject to applicable fire regulations (i.e., "Fire Zone 4" regulations) to ensure that natural vegetation does not pose a fire threat to nearby structures.

7. The "Hillside Planned Residential" designations shall require that any development proposal be processed as a Residential Planned Development, and that the subject property be rezoned to the appropriate RPD designation. This requirement shall not apply to existing individual lots of record, which are incorporated and are zoned for single family residential development at the time of adoption of this program.

8. Neighborhood convenience stores, defined as "a small retail outlet selling food and sundries" shall be permitted in "Hillside Planned Residential" areas, provided there is no existing or proposed commercial center within one-half mile radius of the site. A Conditional Use Permit shall be obtained for this use. The CUP shall cover such items as lot size, building size, parking, and on-site and off-site circulation. The Architectural Review Board, when reviewing such projects, shall give special consideration to signs, landscaping, lighting, colors, and construction materials, to ensure that the project is compatible with the character of the hillside community. This use shall not be permitted within 100 feet of Foothill Road.

PHASE I-HILLSIDE COMMUNITY LAND USE DESIGNATIONS: INTENT AND RATIONALE

AVENUE COMMUNITY

General Character

The hillside area of the Avenue Community is characterized by a mix of residential uses, industrial uses (such as quarrying and oil production), and a major institutional use (Buenaventura Academy). The intent of this plan is to provide for eventual residential development of all developable hillside areas within this community. Existing heavy industrial uses are not considered to be compatible with this type of development, and should be phased out whenever possible.

Residential Uses

The Avenue Community includes two hillside residential designations. The HPR-20 designation is shown in the southeast portion of the community, in an area that is comprised of long, narrow parcels that are zoned R-3-5. The HPR-20 designation will continue to allow multiple-family development, but will assure that it is well planned, and that the overall density is related to the terrain of the area. The HPR-20 designation does not apply to existing single-family dwellings in the vicinity of Cedar Place, which should be preserved.

The HPR-8 designation is similar to the PR-8 designation on the contiguous flatland property. The HPR-8 designation is compatible with existing nearby residential development, as well as the existing institutional use of the Buenaventura Academy. The area which is now used for quarrying is a special natural resource area, and its future use should be evaluated in relation to the availability of alternative sites for producing light-weight aggregate. The major factor to be considered in reviewing development proposals for the HPR-8 designated area is that an adequate circulation system be provided for later interior developments. In addition, the major ridgeline which runs the entire length of the Avenue Community and serves as the community's eastern boundary has been identified as a scenic resource. The ridgeline should be preserved and utilized for a hiking trail to connect De Anza Junior High School and Grant Park.

DOWNTOWN COMMUNITY

General Character

The intent of hillside land use designations in the Downtown Community is to permit additional well-planned residential development, which may capitalize on the excellent views afforded of the City, the beaches, and the Channel Islands. By placing additional residences in close proximity to the Downtown Community, the City's efforts to revitalize that area will also be enhanced.

Residential Uses

There are two distinct areas designated for HPR-20 in the Downtown Community. The land directly north of Poli Street and west of City Hall is within the Coastal Zone, and upon development, will have to meet the policies of the Coastal Act. Because the Local Coastal Program has not yet been developed and coastal issues have not yet been identified or analyzed, this land use designation and the policies pertaining to this property may change as a result of the adoption of the Local Coastal Program.

The other area designated HPR-20 is at the end of Kalorama Street, which provides adequate street capacity for apartment or condominium type development. Apartments already exist in this area, and additional high-density development, designed to minimize the visual impact on the hillside, is appropriate.

Property east of Kalorama Barranca is designated for medium-density development (HPR-15). A portion of this area was previously designated as HPR-20 in the Land Use/Circulation Element. The density has been lowered due to the problems of access from Ann Street, which exceeds the City's 15% grade standard. In addition to the problems of access, the existing single-family character of much of the surrounding area makes high-density development inappropriate. In developing this area at medium density, the developer shall be required to provide a major residential street which meets all relevant hillside street standards.

A designated hiking trail will extend generally along the northern limits of the Downtown Community, east from Grant Park. The exact route of this trail will be determined in conjunction with future development.

CATALINA COMMUNITY

General Character

The Catalina Community is essentially fully developed, except for the hillside area. It is the intent of this plan to preserve the low density residential character of the area, and to minimize the impact of future development on the hillside skyline.

Residential Use

An area north of Aliso Street is designated HPR-6. This property is adjacent to other low-density development, and, if properly designed, should be compatible with existing development.

The HPR-4 designation provides for very low-density residential uses north of existing development in each of the three minor drainage areas of Hall Canyon. Each of these sub-areas should be master planned to ensure that adequate street circulation and drainage systems can be provided for the permitted number of dwelling units. Overall project design (particularly street design and circulation patterns) should be made compatible with

existing development in adjacent residential areas. If possible, provisions should be made for some custom home development, as a means of encouraging variety in architectural styles similar to the existing neighborhood character.

A designated hiking trail (part of a planned trail system extending east from Grant Park to Arroyo Verde Park) runs generally along the northern limits of the Catalina Community. The exact route of this trail will be determined in conjunction with future development. Two north-south links to this trail system are designated in the Catalina Community: (1) the western ridge of Aliso Canyon, and (2) the eastern ridge of Hall Canyon Subarea 1. Both of these ridges, as well as the eastern ridge of Hall Canyon Subarea 2, are designated as "scenic resource" areas, to be preserved in a natural state.

LOMA VISTA COMMUNITY

General Character

The hillside area north of Foothill Road is characterized by a mix of low-density and high-density residential uses in the Hilltop Drive area. East of this development is a large drainage area, which is currently undeveloped except for the Ventura Women's Center building. Land use policies for this area are designed to permit additional residential development of a character which harmonizes with the existing residential areas, minimizes visual impact on the hillside skyline, maintains the scenic values of Foothill Road, and provides public access to the hillside.

Residential Uses

The HPR-4 designation in the area northwest of Hilltop Drive is intended to permit limited additional very low-density single family development adjacent to existing residential uses. Development should be designed to maintain Prince Barranca in a natural state, and public facilities should be located and designed, to the maximum extent possible, in such a manner that further development in Hall Canyon after 1995 is not precluded.

The HPR-4 designation for the Loma Vista drainage area is intended to permit master planned development of very low density residential uses on more gradual slopes, while preserving the steeper slopes in the northern portion of the drainage area in a natural state. Because this drainage area is highly visible from points throughout the City, the skyline ridges which form the boundary of this drainage area are designated as a "scenic resource" area. These ridges should be utilized as a firebreak and rural hiking trail as part of the Linear Park/Circulation System.

ARROYO VERDE COMMUNITY

General Character

The focal point of the Arroyo Verde Community, and particularly the hillside area north of Foothill Road, is Arroyo Verde Park. In addition, there is a large single family hillside development east of the park, and scattered rural single family houses along Foothill Road. Land use designations in this community are intended to preserve and improve the scenic, low-density residential character of the hillside areas, to minimize the impact of hillside development on residential areas south of Foothill Road, and to improve access to Arroyo Verde Park.

Residential Uses

The southeast-facing slope area in the southeastern portion of the Barlow Canyon drainage area is designated for very low-density residential (HPR-4) development. This area should be master planned, with special attention given to preserving the scenic character of Foothill Road (see Circulation policies). The ridgeline extending northeast from Foothill Road (at Barlow Barranca) to Arroyo Verde Park should be preserved as a "scenic resource" area and rural hiking trail as part of the Linear Park/ Circulation System. In addition, the visual impact of development near Arroyo Verde Park should be a primary concern in evaluating proposed projects in this area.

The HPR-6 designation in the area southeast of the Skyline Drive residential tract permits additional single-family development, compatible with development in the Skyline tract and south of Foothill Road.

POINSETTIA COMMUNITY

General Character

The hillsides in the Poinsettia Community are already extensively developed, and include three distinct residential areas.

1) "Hidden Valley" tract in Sexton Canyon, a single-family subdivision in a relatively flat portion of the canyon;

2) "Ondulando", a large residential area, containing both very low-density estate homes, and standard lot single family development, and

3) "Clearpoint" tract, a recently developed area containing standard lot single family dwelling units.

The intent of land use designations in this community is to preserve and improve the unique residential character of each of these residential areas, and to establish stable long-term community boundaries.

Residential Uses

The HPR-4 designation in the area north of Hidden Valley tract is intended to limit the impact of development in this area on existing residential development. The HPR-6 designation south of Hidden Valley tract permits standard lot single family hillside development; realignment of Victoria Avenue should be accomplished in conjunction with this development.

The HPR-8 designation on a parcel northeast of the intersection of Victoria Avenue and Foothill Road is intended to permit development of a similar character and intensity to the Ondulando area. Similarly, the HPR-4 designation at the northern end of Via Arroyo Drive is intended to permit minimum density development compatible with the adjacent residential area; the number of dwelling units permitted in this area may be further reduced after detailed analysis of site problems.

The pending Clearpoint-Unit IV tract east of Ondulando is designated for standard lot single family hillside development (HPR-6).

CIRCULATION

Objectives

A. To protect and and enhance the scenic qualities of Foothill Road.

B. To provide for safe and efficient means of ingress and egress into the hillside area for day-to-day vehicle and pedestrian traffic, as well as ready access for emergency vehicles (e.g., fire trucks).

C. To minimize the scarring effect of major hillside streets.

D. To improve public access to hillside recreation areas.

Policies

1. Future improvements to Foothill Road shall be designed so as to.

   a. Provide a high level of service by minimizing congestion and the number of traffic signals.

   b. Maintain its scenic qualities by keeping its present curvilinear path wherever possible, and by contouring and landscaping all man-made slopes.

   c. Minimize the need for retaining walls or similar structures.

   d. Preserve existing trees along this route wherever possible.

   e. Improve bicycle circulation along this route.

2. East-west connector streets shall, wherever feasible, be constructed between drainage areas, north of Poli Street and Foothill Road. The feasibility and location of such streets shall be determined as part of the Circulation and Drainage Master Plan. (See "Plan Requirements")

3. Two access points shall be provided from Loma Vista and Barlow Canyon (Phase I) drainage areas onto Foothill Road. These access points shall be located as part of the Circulation and Drainage Master Plan for these drainage areas.

4. Each hillside drainage area shall be served by an interior loop street system. If a loop system is infeasible, the number of dwelling units served by a single long residential street shall be limited.

5. All access streets, interior loop streets and inter-canyon connector streets shall be designed to "major residential street" standards (as defined in the "Hillside Street Standards" chart, "Project Review Standards" section).

6. Hiking trails, as designated on the Hillside Land Use and Phasing Map, shall be dedicated and improved in conjunction with Phase I-Hillside development. (See "Open Space and Conservation" policies). In addition, hiking trails shall be provided within a development, wherever feasible, to provide connections with the designated Linear Park/Circulation System trails in the hillside area.

CAPITAL IMPROVEMENTS

Objectives

A. To demonstrate that the long-range urban service implications of hillside development are fully assessed, in order not to unintentionally preclude future development in any given drainage area.

B. To ensure the City's financial capability to participate, where necessary, in future improvements to the urban infrastructure.

C. To achieve quality levels of services for present residents of the City prior to committing significant revenues to the expansion of services.

D. To maintain the City's commitment to concentrating its capital improvement resources in the "Phase I-Centers" communities, where the greatest concentration of population and urban service deficiencies exist.

Policies

1. The practicality of extending urban services to the "Phase I-Hillside" portion of any drainage area must be demonstrated to the City, and the City must be financially able to participate, if necessary, in providing adequate services either prior to or in conjunction with development. If it is found infeasible to provide an adequate level of any service in a "Phase I-Hillside" drainage area, the adoption of a funding program for that service will be required for the entire "Phase I" portion of the drainage area prior to its development.

2. Urban service extensions to "Phase I-Hillside" parcels shall address existing and projected flatland and hillside service problems and deficiencies, according to criteria which promote incremental development and the efficient operation of urban systems.

3. Where additional urban service facilities are shown to benefit solely future hillside development, such development shall be required to finance all needed improvements, including participation in mitigating such flatland or downstream problems as may be caused by the additional development. The method of participation (e.g., participation area, assessment district, etc.) shall be determined in consideration of the type of improvement, and the area of participation shall be limited to "Phase I-Hillside" properties.

4. The first property or properties to develop in each drainage area in "Phase I-Hillside" shall design, construct, and finance necessary capital improvements, where such improvements are required so as not to preclude future "Phase I-Hillside" development in the drainage area, and shall be reimbursed through participation by other affected properties. The method of participation shall be determined in consideration of the type of improvement, with the area of participation confined to "Phase I-Hillside" properties.

5. The extension of urban services to "Phase II-Hillside" areas will be considered concurrently with the consideration for development of those areas, subject to the adoption of capital improvement and funding programs for the entirety of each drainage area within the planning area.

6. The potential for the extension of urban services to "Phase III-Hillside" areas will be considered concurrently with the consideration for development of those drainage areas within the planning area.

OPEN SPACE AND CONSERVATION

Objectives

A. To maintain the scenic character of the hillsides in areas of future development, by preserving significant natural landmarks and scenic ridgelines and slopes.

B. To provide increased recreational opportunities for existing and future hillside residents, by improving access to existing parks and establishing additional parks in conjunction with future hillside development.

C To maximize public access to hillside open space and recreation areas, by establishing a system of linear parks and hiking trails along scenic ridges and barrancas.

D. To minimize the impact of hillside development on sensitive natural habitats and historical and archaeological resources.

Policies

1. "Scenic resource" areas, such as skyline ridges and significant natural landmarks, as designated on the Hillside Land Use and Phasing Map, shall be preserved in a natural state. It shall be the goal of the City to obtain dedication of a "scenic easement" from the property owner with respect to such scenic resource areas that are not intended for public access, in conjunction with any development which may occur on the remainder of the property. The granting of a scenic easement will obligate the property owner to retain, maintain, preserve, and protect the public view of these areas in their natural state, without obstruction by structures. A scenic easement shall not prohibit clearing of brush or planting of vegetation which is necessary to reduce fire hazards.

   A scenic easement shall also be granted to the City for other areas, not designated as scenic resource areas, which are to be preserved in a natural state (such as steep slope areas which are to be preserved under a "density transfer" or "cluster development" concept). An "access easement" will be required for any scenic resource area where it is deemed desirable to permit public access (e.g., scenic vista points, trails, etc.).

2. Future hillside neighborhood parks shall be designated by the City in the Parks and Recreation Element of the Comprehensive Plan. In addition, the City shall encourage the dedication and park-like improvement of flood control retention facilities in the hillsides.

3. Hillside development shall be designed, whenever possible, to preserve existing trees and other natural vegetation which serve to stabilize slopes, prevent erosion, and preserve the natural scenic character of hillside and canyon areas. The environmental impact assessment for any project which includes oak woodland areas shall determine the number and condition of these trees, and shall recommend measures for preserving them. Such measures may include dedication of a scenic easement by the property owner to the City.

4. An archaeological survey shall be prepared by a qualified archaeologist for any site which is a known or suspected archaeological site. The survey shall be prepared as part of the environmental impact assessment process, either as a part of the Environmental Impact Report, if one is required, or prior to issuance of a Final Negative Declaration, if one is not.

5. It shall be the responsibility of the project developer to ensure that if, during the development of the project, any archaeological material of any type is found, it shall be reported to the Office of the City Manager immediately, and all grading stopped, so that appropriate action can be taken. The City may require that a qualified archaeologist be present during grading operations.

PROJECT REVIEW STANDARDS

Grading and Site Design

Objectives

A. To preserve the natural character and appearance of the hillsides.

B. To use to the best possible advantage the limited resource of hillside view lots.

Policies

1. Hillside development shall minimize grading, terracing, padding and cut and fill to the maximum extent possible. Where grading, terracing, padding or cut and fill is unavoidable, it shall be shaped and rounded to simulate natural-appearing contours.

2. Cut and fill slopes shall be limited to a maximum slope angle of two horizontal to one vertical.

3. No grading shall be permitted on any slope greater than 30%.

4. Units shall be sited on lots in such a way that the living areas take maximum advantage of the views afforded by the lot.

5. Each unit shall be located so that it will not, to the maximum extent possible, interfere with the view from adjoining lots.

6. At the time the tentative subdivision map is submitted a 3-dimensional "building envelope" shall be delineated for each lot specifying where that unit can be built and expanded without interfering substantially with the views from other lots. This "building envelope" restriction shall be referred to in the covenants, conditions, and restrictions (CC&R's) with language approved by the City. and shall be made a condition of the Planned Development permit or other appropriate approval.

Drainage Systems

Objectives

A. To provide for the safe and efficient disposal of storm water runoff from hillside development, while minimizing costs of expanding flatland drainage systems to accommodate additional hillside runoff.

B. To minimize adverse visual impacts which may result from the design and placement of drainage facilities, by maintaining existing channels in a natural state, and allowing flexibility in the design of individual drainage systems.

C. To design hillside drainage facilities in such a way that groundwater recharge is maximized.

Policies

1. To the maximum extent possible, barranca channels shall be preserved and maintained in their natural state, and retention facilities provided in locations identified in the Circulation and Drainage Master Plan (see Implementation section) as most suitable for enhancing groundwater recharge. Use of concrete-lined channels shall be avoided wherever possible.

2. If concrete channels are to be utilized, the developer shall participate in the financing of any improvements needed to alleviate anticipated downstream impacts on existing flood control facilities.

3. Areas adjacent to flood control and storm drainage facilities in barranca channels (2:1-foot slope from the toe of the slope plus 20 feet) shall be dedicated as Parcel "X" lands to maintain an adequate margin of safety.

4. Retention facilities and all other primary drainage facilities shall be designed to 50-year flood standards. A geologic investigation shall be made to ensure that any proposed retention facility will not cause slippage or seepage in downslope properties.

5. Retention facilities and Parcel "X" lands shall be incorporated as recreation areas where deemed appropriate, and shall be designed to minimize maintenance costs.

6. Where it is determined to be appropriate by the City Engineer, onsite drainage may be channeled by systems other than street drains. Such systems shall be constructed on private property, and maintained by the property owner. The visual impacts of such alternative drainage systems shall also be critically evaluated in determining their suitability.

Geologic Hazards

Objective

A. To ensure the maximum level of safety to both existing and future hillside residents in the event of seismic activity, or other natural occurrences, through the proper evaluation and consideration of geologic hazards in future hillside development.

Policy

1. If required soils and geologic reports and the tentative map for a project do not demonstrate that all identified hazards can and will be mitigated, the tentative map shall be modified by the applicant, as necessary to mitigate such hazards.

Landscaping

Objectives

A. To ensure the planting of hillside slopes in such a manner as to aid in controlling erosion and fire hazards, stabilizing exposed slopes, and reducing water consumption for landscaping purposes.

B. To enhance the visual character of new hillside development through the use of appropriate landscaping methods and materials.

Policies

1. All slopes four feet or higher shall be planted according to approved methods with an approved perennial type of planting selected from a listing of materials suited to hillside use developed by the City Landscape Architect. Primary considerations shall be given to the use of plants which aid erosion control and require little irrigation. Deviation from plant selections in the approved hillside listing must be reviewed and approved by the City Landscape Architect.

2. In order to enhance the physical appearance of hillside developments, a minimum of one street tree per lot shall be required to be located in street rights-of-way or immediately adjacent to them. Such trees shall be selected from an approved listing developed by the Parks Department and the Street Tree Committee.

3. No occupancy clearance will be issued for any lot until all required planting, as approved by the City Landscape Architect and the Building Official, has been viably established (i.e., capable of living and growing).

4. The developer shall be responsible for the maintenance of all landscaping prior to the occupancy of homes. All hillside residents shall assume the responsibility to fully maintain landscaped slopes upon occupancy. Appropriate irrigation systems may be required in the project design in order to facilitate and ensure proper maintenance.

5. Where deemed necessary to ensure the long-term maintenance of hillside landscaping, measures such as a special assessment district, homeowner's association, or some other mechanism may be required.

Street Design

Objectives

A. To minimize the adverse visual impact of streets on the hillside landscape.

B. To establish internal street systems in future hillside developments which permit safe and efficient travel for motor vehicles, bicycles, and pedestrians, and ensure ready access for emergency vehicles.

Policies

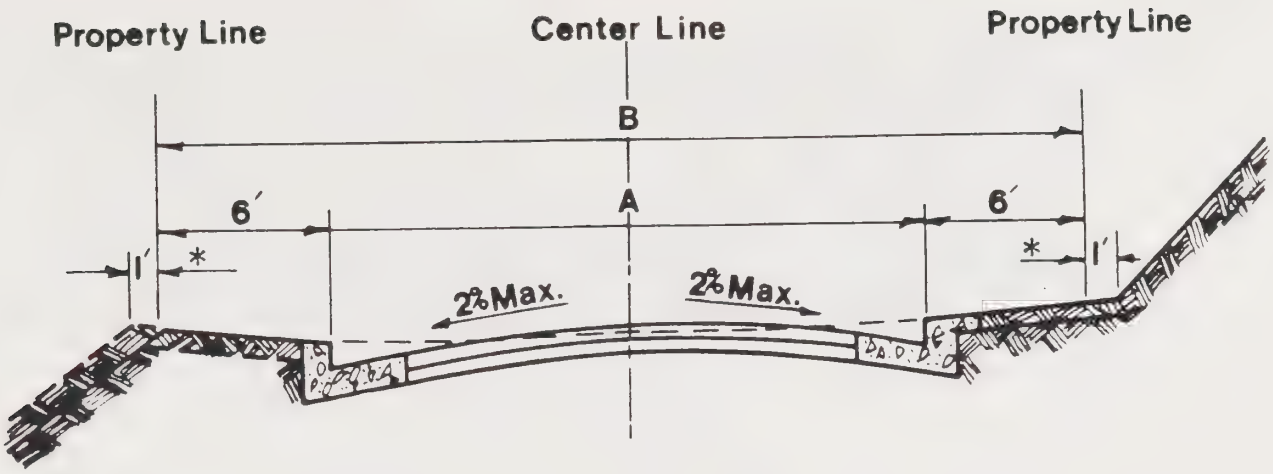
1. The attached chart entitled "Hillside Street Standards" delineates an alternative set of standards which may be used in the design of hillside streets. The use of split-level one-way streets will be allowed wherever such use will result in a more efficient use of the existing terrain, or will minimize the scarring effects of hillside development. "Dead-end" streets shall have a turn-around area with a minimum clear diameter of 40 feet, regardless of the permitted width of the street.

2. Streets shall run with the natural contours of the land, and not at right angles to them, unless absolutely unavoidable. The burden will be upon the developer to show that streets running with the contours are infeasible.

3. Horizontal and vertical curves shall be such that a minimum site distance of 150 feet is provided at all points. The minimum horizontal centerline curve radius on residential streets shall be 100 feet. Reversed curves shall be connected with tangents as long as practicable. Major residential streets shall be designed to incorporate vertical and horizontal curves greater than the said minimum for residential streets, in order to provide for increased traffic flow.

4. The maximum centerline grade for residential streets shall be 15%, but the maximum grade shall not apply to intersections or adjacent areas of transition. In these areas, the centerline grade shall be flat, unless a steeper grade is permitted by the City Engineer. The maximum grade for major residential streets shall be 12%. Changes in grade greater than 0.5% shall be connected by vertical curves. The length of vertical curves shall conform to standards of sight distances and riding qualities established by the City Engineer.

5. All hillside public streets shall be provided with a minimum level of street lighting consistent with the standards set forth in "American National Standard Practice for Roadway Lighting." Adverse impacts on views shall be mitigated in the location and design of street lights.



HILLSIDE STREET STANDARDS

STREET DESIGNATION	TRAVELWAY WIDTH "A"	TOTAL R.O.W. WIDTH "B"	SIDEWALK REQUIRED	MAX. GRADE PERMITTED	MIN. CURVE RADII PERMITTED	COMMENTS
RESIDENTIAL STREET (one-way)	20	32	1 side only (same side as parking)	15%	150'	PARKING PERMITTED ON ONE SIDE ONLY
SPLIT-LEVEL STREET (one-way in each direction)	20' each level	V**	Both sides	15%	150'	PARKING PERMITTED ON RIGHT SIDE OF EACH LEVEL ONLY
RESIDENTIAL STREET (two-way)	32	44	1 side only (same side as parking)	15%	150'	PARKING PERMITTED ON ONE SIDE ONLY
MAJOR RESIDENTIAL (two-way) [parking both sides]	40	56	Both sides	12%	150'	PARKING PERMITTED ON BOTH SIDES

* 1' extension only if adjacent to sidewalk
** Varies, depending on slope

6. Easements and common driveways shall be allowed in the hillsides to reduce the scarring of the natural landscape. The width will be a minimum of 12 feet for one housing unit, and 24 feet for two or more units.

7. All subdivisions shall provide public parking spaces at strategic vista points within the development. Developments shall also provide adequate private off-street parking to minimize the need for parking on narrow hillside streets.

IMPLEMENTATION

Plan Requirements

While a great amount of information has been acquired regarding the hillside area in the preparation of the Hillside Management Program, it will be necessary to obtain additional information in order to judge the adequacy of each proposed development in meeting the adopted objectives and policies of the Hillside Management Program. Therefore, the following plan requirements are established for all properties which have a "Hillside Planned Residential" land use designation.

EIR Requirements & Procedures

Due to the existence of certain known geologic hazards in the hillside area, potentially significant impacts of development on environmental resources, as well as potential impacts on urban service systems, it is anticipated that an Environmental Impact Report will be required for the vast majority of proposed hillside projects. The following specific requirements and procedures shall be used with regard to proposed projects in the hillside area.

1. An environmental assessment form shall be filed for any project in a "Hillside Planned Residential" area.

2. If deemed appropriate by the EIR Committee, a "focused" EIR shall be required. A focused EIR shall include: (1) preliminary geologic and soils reports; (2) preliminary evaluation of potential impacts on scenic resources; (3) analysis of impacts on fixed urban service systems; (4) analysis of other environmental issues identified as potentially significant by the EIR Committee.

3. Projects which are presently eligible for categorical exemptions will be processed through an environmental assessment, but may receive a negative declaration if preliminary soils and geologic reports do not indicate significant hazards and are prepared prior to the issuance of any planning approvals.

4. Each EIR shall include, at least, preliminary soils and geologic reports, as defined below. If the preliminary geologic report indicates that there are potentially significant hazards related to the project, a full geologic report (as defined by the Ventura County General Guidelines for Geologic Reports, see Appendix), will be required and completed as part of the EIR process prior to the filing of the tentative map. All proposed mitigating measures shall be incorporated in the tentative map, as certified by the geologist who prepared the report.

Preliminary soils and geologic reports shall, at a minimum, include the following:

a. A preliminary soils evaluation describing the nature of the subsurface soils and any soil conditions which would affect the geometrics of the proposed development. The soils evaluation shall state whether the proposed plan is feasible and provide general solutions for all known hazardous conditions or problems. The evaluation shall include the location and lots of any test borings.

b. An engineering geology evaluation defining geologic conditions of the site. The geologic evaluation shall state whether the proposed plan is feasible and provide general solutions for all known hazardous conditions or problems. The evaluation shall include the location and lots of any test borings and shall evaluate the effect of the geology on the proposed development and on adjacent properties. The report shall point out specific areas where development may create hazardous conditions.

c. In addition, the preliminary geology report shall generally identify any soils and/or geologic conditions existing on adjacent sites located in such a manner or of such a nature as may be hazardous to the proposed project.

5. Soils and geologic investigations required for hillside development shall be reviewed by a certified expert to be selected by the City, in order to determine the sufficiency of the evaluations.

6. The EIR Committee may require a "before and after" three-dimensional drawing or model of the proposed project, if it finds, based on a preliminary evaluation, that the project could have a significant impact on the scenic resources of the hillside area. The 3-dimensional drawing or model shall depict the subject property before and after the proposed project is completed, and shall show all existing and proposed streets. The drawing or model shall be submitted with the tentative map for review by the Subdivision Committee.

7. Slope Map

In order to calculate permitted densities for "Hillside Planned Residential" designations, the applicant shall submit a slope map. This map shall be produced on a base topographical map of the site, at a scale of 1" per 50 feet or larger for parcels less than or equal to 20 acres, and 1" per 100 feet or larger for parcels greater than 20 acres. Maps shall have a minimum contour interval of 10 feet, in constant increments from zero.

The slope map shall show the location of slopes in the following "percent slope categories": 0-10%; 10-20%; 20-30%; 30-50% and 50% and above. Slopes shall be displayed either in contour bands or in 100 foot by 100 foot grids.

The average natural slope shall be calculated by the following formula:
$S = IL/A \times 100$; where

S = Average natural slope, in percent;
I = Contour interval, in feet;
L = Total accumulated length of all contours of interval "I," in feet,
A = The area being considered, in square feet.

In addition to a graphic display of slope information, the slope map shall include calculations of acreage in each percent slope category, as well as "slope/acreage" summary, which indicates:

1. Total number of acres with 30% or less slope, and the average natural slope of such areas; and

2. Total number of acres greater than 30% slope.

Number of dwelling units permitted on a parcel shall be calculated on the basis of data presented in the "slope/acreage" summary. Alternative slope calculation methods, as approved by the Director of Community Development, may be used.

Planned Development Permit Requirements

In order to implement the "slope/density" formulas, and policies concerned with siting of units and the provision of view protection, the following additional items shall be required as part of an application for a Planned Development Permit in any area designated for "Hillside Planned Residential" development. The Planned Development permit request, and accompanying information, shall be submitted with the tentative map or other land division request.

Site Plans

The developer shall submit, with the tentative map or other permit application, a map depicting the location of the dwelling unit on each lot, the design of the unit on the lot, and the direction it is facing. The developer shall also provide floor plans and elevation plans for each type of unit being used in the project. In the case of a custom home project, these plans will be submitted and reviewed prior to issuance of a building permit.

Circulation and Drainage Master Plan

The first project within a "Phase I-Hillside" drainage area shall provide a Circulation and Drainage Master Plan for the Phase I portion of the major and/or minor drainage area within which it is situated. The following are the specific requirements for such a plan:

1. The plan shall be submitted with the tentative map for the proposed project, and notice shall be given to property owners affected by the proposed Circulation and Drainage Master Plan.

2. The circulation portion of the Plan shall include the design of a major residential street system for the drainage area which meets all the City's adopted circulation policies. Specifically, the plan should demonstrate that:

   a. A maximum 12% grade can be maintained on major residential streets;

   b. Where it is required that more than one access to Foothill Road be provided, such improvements are feasible and practical from an economic and engineering standpoint;

   c. Where required, a major residential street connection can be made with adjoining drainage areas;

   d. Later phases of the hillside area are not precluded access to Foothill Road or other flatland collector streets;

   e. The patterns of major residential streets will, to the maximum extent feasible, run with the natural contours of the hillsides.

3. The drainage portion of the Plan shall depict the location and size of retention facilities and other flood control mechanisms necessary to control 50-year storms. The plan shall also include landscaping plans for proposed retention facilities. This plan shall be reviewed and approved by the Ventura County Flood Control District.

   If the developer proposes to improve the natural channels (e.g., concrete lining) rather than provide retention facilities, the developer shall provide a funding mechanism which will pay for the capital expenditures necessary to expand existing facilities, so as to accept the 50-year storm runoff of the complete major or minor drainage area, assuming full improvement of the natural channels. Such plans shall also be reviewed by the Ventura County Flood Control District.

4. The Master Plan may also be required to address other specific urban service system problems which may be identified in a given drainage area.

GENERAL GUIDELINES FOR GEOLOGICAL REPORTS

FOR THE

COUNTY OF VENTURA

The purpose of this statement is to provide geologists who submit reports to the Department of Public Works, County of Ventura, with an understanding of what kinds of information, discussion, and recommendations are desired in order that such reports can be accepted. It is recognized that certain geologic interpretations cannot be firm or complete, at least in advance of grading operations, but it is expected that all kinds of pertinent data will be presented fully and clearly, so that interpretations and recommendations can be critically reviewed by others. It also is recognized that different physical situations demand reports differing from one another in scope, length, and organization; most of the following comments are therefore intended to serve as a general guide for those persons who prepare and use geological reports, rather than as a rigid framework of requirements.

I. GEOLOGICAL MAPPING

A. Each report must be a product of independent geologic mapping of the subject area at an appropriate scale and in sufficient detail to yield a maximum return of pertinent data. In connection with this objective, it may be necessary for the geologist to extend his mapping into adjacent areas.

B. All mapping should be done on a base with satisfactory horizontal and vertical control—in general a detailed topographic map. The nature and source of the base map should be specifically indicated. *For sub-divisions, the base map should be the same as that to be used for the tentative map or grading plan.*

C. Mapping by the geologist should reflect careful attention to the lithology, structural elements, and three-dimensional distribution of the earth materials exposed or inferred within the area. In most hillside areas these materials will include *both* bedrock and surficial deposits. A clear distinction should be made between observed and inferred features and relationships.

D. A detailed large-scale map normally will be required for a report on a tract, as well as for a report on a smaller area in which the geologic relationships are not simple.

E. Where three-dimensional relationships are significant but cannot be described satisfactorily in words alone, the report should be accompanied by one or more appropriately positioned structure sections.

F. The locations of test holes and other specific sources of subsurface information should be indicated in the text of the report or, better, on the map and any sections that are submitted with the report.

II. GENERAL INFORMATION

Each report should include definite statements concerning the following matters:

A. Location and size of subject area, and its general setting with respect to major geographic and geologic features.

B. Who did the geologic mapping upon which the report is based, and when the mapping was done.

C. Any other kinds of investigations made by the geologist and, where pertinent, reasons for doing such work.

D. Topography and drainage in the subject area.

E. Abundance, distribution, and general nature of exposures of earth materials within the area.

F. Nature and source of available subsurface information. Suitable explanations should provide any technical reviewer with the means for assessing the probable reliability of such data. (Subsurface relationships can be variously determined or inferred, for example, by projection of surface features from adjacent areas, by the use of test-hole logs, and by interpretation of geophysical data, and it is evident that different sources of such information can differ markedly from one another in degree of detail and reliability according to the method used).

III. GEOLOGIC DESCRIPTIONS

The report should contain brief but complete descriptions of all natural materials and structural features recognized or inferred within the subject area. Where interpretations are added to the recording of direct observations, the bases for such interpretations should be clearly stated.

The following check list may be useful as a general, though not necessarily complete, guide for descriptions:

A. Bedrock—igneous, sedimentary, metamorphic types.

1. Identification as to rock type (e.g.; granite, silty sandstone, mica schist).
2. Relative age, and, where possible, correlation with named formations (e.g.; Rincon formation, Vaqueros sandstone).
3. Distribution.
4. Dimension features (e.g.; thickness, outcrop breadth, vertical extent).
5. Physical characteristics (e.g.; color, grain size, nature of stratification, foliation, or schistosity, hardness, coherence).
6. Special physical or chemical features (e.g.; calcareous or siliceous cement, concretions, mineral deposits, alteration other than weathering).
7. Distribution and extent of weather zones; significant differences between fresh and weathered rock.
8. Response to natural surface and near-surface processes (e.g.; raveling, gullying, mass movement).

B. Structural features—stratification, foliation, schistosity, folds, zones of contortion or crushing, joints, shear zones, faults, etc.

1. Occurrence and distribution.
2. Dimensional characteristics.
3. Orientation, and shifts in orientation.
4. Relative ages (where pertinent).
5. Special effects upon the bedrock. (Describe the conditions of planar surfaces).
6. Specific features of faults (e.g.; zones of gouge and breccia, nature of offsets, timing of movements); are faults active in either the geological sense or the historical sense?

C. Surficial (unconsolidated) deposits—artificial (manmade) fill, topsoil, stream-laid alluvium, beach sands and gravels, residual debris, lake and pond sediments, swamp accumulations, dune sands, marine and nonmarine terrace deposits, talus accumulations, creep and slopewash materials, various kinds of slump and slide debris, etc.

1. Distribution, occurrence and relative age, relationships with present topography.
2. Identification of materials as to general type.
3. Dimensional characteristics (e.g., thickness, variations in thickness, shape).
4. Surface expression and correlation with features such as terraces, dunes, undrained depressions, anomalous protuberances.
5. Physical or chemical features (e.g., moisture content, mineral deposits, content of expansible clay minerals, alteration, cracks and fissures, fractures).
6. Physical characteristics (e.g., color, grain size, hardness, compactness, coherence, cementation).
7. Distribution and extent of weathered zones; significant differences between fresh and weathered material.
8. Response to natural surface and near-surface processes (e.g., raveling, gullying, subsidence, creep, slope-washing, slumping and sliding).

D. Drainage—surface water and groundwater.

1. Distribution and occurrence (e.g.: streams, ponds, swamps, springs, seeps, subsurface basins).
2. Relations to topography.
3. Relations to geologic features (e.g., previous strata, fractures, faults).
4. Sources and permanence.
5. Variations in amounts of water (e.g., intermittent springs and seeps, floods).
6. Evidence for earlier occurrence of water at localities now dry (e.g., vegetation, mineral deposits, historic records).
7. The effect of water on the properties of the in-place materials.

E. Features of special significance (if not already included in foregoing descriptions).

1. Features representing accelerated erosion (e.g., cliff reentrants, badlands, advancing gully heads).
2. Features indicating subsidence or settlement (e.g., fissures, scarplets, offset reference features, historic records and measurements).
3. Features indicating creep (e.g.: fissures, scarplets, distinctive patterns of cracks and/or vegetation, topographic bulges, displaced or tilted reference features, historic records and measurements).
4. Slump and slide masses in bedrock and/or surficial deposits, distribution, geometric characteristics, correlation with topographic and geologic features, age and rates of movement.
5. Deposits related to recent floods (e.g., talus aprons, debris ridges, canyon-bottom trash).
6. Active faults and their recent effects upon topography and drainage.

IV. THE BEARING OF GEOLOGIC FACTORS UPON THE INTENDED LAND USE

Treatment of this general topic, whether presented as a separate section or integrated in some manner with the geologic descriptions normally constitutes the principal contribution of the report. It involves *both* (1) the effects of geologic features upon the proposed grading, construction, and land use, and (2) the effects of these proposed modifications upon future geological processes in the area.

The following check list includes the topics that ordinarily should be considered in submitting discussion, conclusions, and recommendations in the geologic reports.

A. General compatibility of natural features with proposed land use: Is it basically reasonable to develop the subject area?

1. Topography.
2. Lateral stability of earth materials.
3. Problems of flood inundation, erosion, and deposition.
4. Problems caused by features or conditions in adjacent properties.
5. Other general problems.

B. Proposed cuts.

1. Prediction of what materials and structural features will be encountered.
2. Prediction of stability based on geologic factors.
3. Problems of excavation (e.g.: unusually hard or massive rock, excessive flow of groundwater).
4. Recommendations for reorientation or repositioning of cuts, reduction of cut slopes, development of compound cut slopes, special stripping above daylight lines, buttressing, protection against erosion, handling of seepage water, setbacks for structures above cuts, etc.

C. Proposed masses of fill.

1. General evaluation of planning with respect to canyon-filling and sidehill masses of fill.
2. Comment on suitability of existing natural materials for fill.
3. Recommendations for positioning of fill masses, provision for underdrainage, buttressing, special protection against erosion.

D. Recommendations for subsurface testing and exploration.

1. Cuts and test holes needed for additional geologic information.
2. Program of subsurface exploration and testing based upon geologic considerations, that is most likely to provide data needed by the soils engineer.

E. Special recommendations.

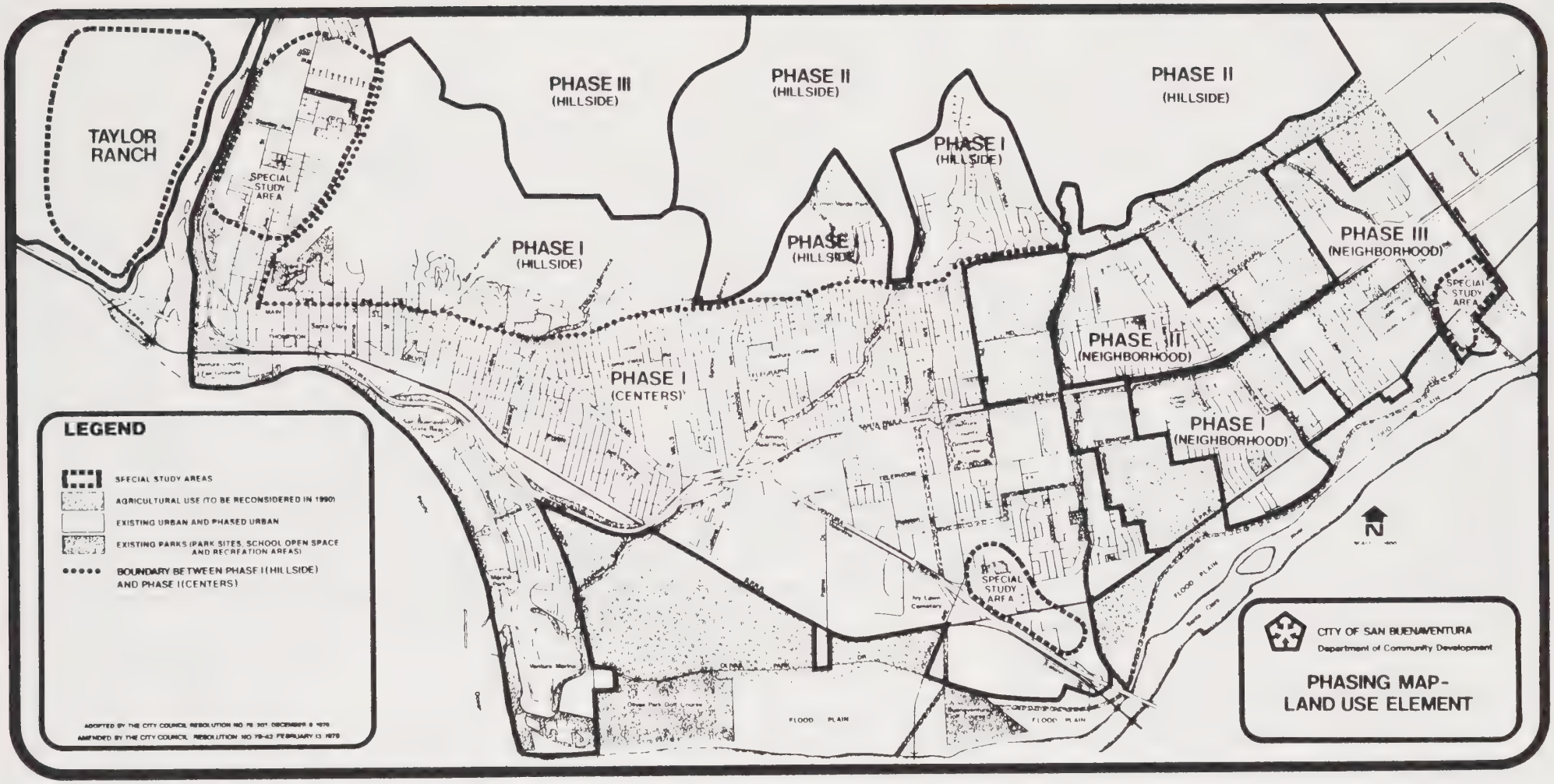
1. Areas to be left as natural ground.
2. Removal or buttressing of existing slide masses.
3. Flood protection.
4. Protection from wave erosion along shorelines.
5. Problems of groundwater circulation.
6. Position of structures with respect to active faults.

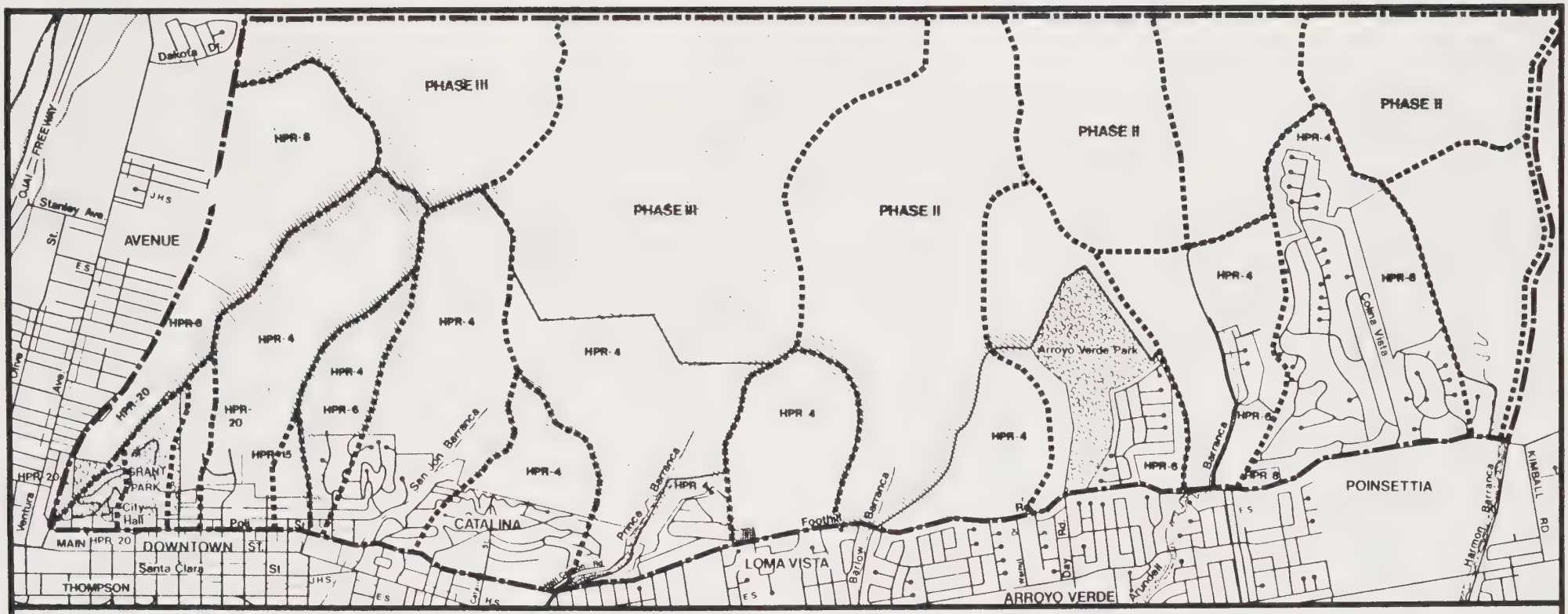
Future Actions

Incorporated vacant and underdeveloped parcels which are in the "Phase I-Hillside" area, and which have zoning designations not in conformance with this plan shall not be allowed to develop until the zoning is made to conform. Most of this property is zoned R-1-7 or R-3-5. These zones do not meet the intent of the plan, in that they do not provide a review process as outlined by the "Hillside Planned Residential" designation, nor do they meet the density requirements of the slope-density formulas. In order to meet the intent of the plan, all incorporated Phase I-Hillside properties shall be given an RPD zone with a density consistent with this plan, and with the understanding that the actual number of permitted dwelling units on any parcel will be based on the appropriate slope/density formula.

In addition to the above rezonings, the City should request that the County Board of Supervisors rezone "Phase II-Hillside" and "Phase IIIHillside" areas to an open space or agricultural zone with a maximum base density of one unit per 40 acres. The majority of these areas are designated as "Open Space" on the County's adopted Open Space and Conservation Element, and should be rezoned for conformance with that plan as well as the Hillside Management Program.

In addition, existing City ordinances and resolutions relating to grading, landscaping, geologic reports, fire protection regulations, and other related matters should be reviewed for conformance with the policies of the Hillside Management Program, and revised as necessary. In the interim, the policies contained herein shall supersede the minimum standards and requirements set forth in such ordinances for designated hillside areas.


TAYLOR RANCH
SPECIAL STUDY AREA
PHASE III (HILLSIDE)
PHASE II (HILLSIDE)
PHASE II (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (CENTERS)
PHASE III (NEIGHBORHOOD)
SPECIAL STUDY AREA
PHASE II (NEIGHBORHOOD)
PHASE I (NEIGHBORHOOD)
SPECIAL STUDY AREA
FLOOD PLAIN
FLOOD PLAIN
FLOOD PLAIN
LEGEND
SPECIAL STUDY AREAS
AGRICULTURAL USE (TO BE RECONSIDERED IN 1990)
EXISTING URBAN AND PHASED URBAN
EXISTING PARKS (PARK SITES, SCHOOL OPEN SPACE AND RECREATION AREAS)
BOUNDARY BETWEEN PHASE I (HILLSIDE) AND PHASE II (CENTERS)
ADOPTED BY THE CITY COUNCIL RESOLUTION NO. 79-301 DECEMBER 6, 1979
AMENDED BY THE CITY COUNCIL RESOLUTION NO. 79-42 FEBRUARY 13, 1979
CITY OF SAN BUENAVENTURA
Department of Community Development
PHASING MAP-
LAND USE ELEMENT



CITY OF SAN BUENAVENTURA
Department of Community Development
FEBRUARY 13 1978

ADOPTED BY CITY COUNCIL (RES. NO 78 42)

HILLSIDE MANAGEMENT PROGRAM-LAND USE AND PHASING MAP

RESOLUTION NO. 78-42

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING A HILLSIDE MANAGEMENT PROGRAM AS PART OF THE CITY'S COMPREHENSIVE GENERAL PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has duly reviewed, studied and considered the following information:

1. Planning Division staff reports on physical, environmental, socio-economic, urban service, and policy issues related to hillside development;

2. "Impacts of Hillside Development," the Environmental Impact Report on hillside development alternatives;

3. Policy recommendations forwarded by the Planning Commission subsequent to three public workshops and public hearings on this matter;

4. Written and oral testimony of interested citizens, developers, and property owners received during public hearings and study sessions;

5. Other miscellaneous reports and all other information presented during the course of public hearings, workshops, and study sessions held in connection with consideration of the proposed Hillside Management Program.

SECTION 2: The City Council hereby adopts the Hillside Management Program, which consists of the following items annexed hereto and incorporated herein by this reference.

1. "Hillside Management Program: Adopted Policies" (dated February 13, 1978).

2. "Hillside Management Program Land Use and Phasing Map" (dated February 13, 1978).

3. "Phasing Map - Land Use Element" (dated February 13, 1978).

4. "Findings of Mitigation of Significant Environmental Impacts."

SECTION 3: Based on the finding that the proposed development is small (less than one acre), and the site has already been graded for development, GAP Development, Inc., is exempted from the Hillside Management Program for a proposed development on Ferro Drive, west of Palm Street, subject to a maximum of ten (10) dwelling units, and with all applicable Hillside Management Program policies except for the "slope/density" requirement to be made conditions of the Planned Development permit for this project.

SECTION 4: Based on the finding that the proposed project site has already been graded for development, Western America Development Corporation is exempted from the "slope/density" requirements of the Hillside Management Program for the proposed development at Kalorama Street north of Church Street, subject to a maximum of 121 dwelling units, and subject to all other applicable Hillside Management Program policies.

PASSED AND ADOPTED this 27th day of February, 1978.

/S/ BARBARA J. KAM
City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. Kam, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 27th day of February, 1978, by the following vote:

AYES: Councilmembers Chaudier, Harrington, McWherter and Kosmo.

NOES: Councilmembers Garrett, Monahan and Ellison.

ABSENT: Councilmembers None.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 28th day of February, 1978.

/S/ BARBARA J. KAM
City Clerk

SECTION F

AIR QUALITY MANAGEMENT PLAN

IMPLEMENTATION PROGRAM

CITY COUNCIL RESOLUTION NO. 79-121

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING AN AMENDMENT TO THE PHASING PLAN OF THE CITY'S COMPREHENSIVE PLAN

BE IT RESOLVED, by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has duly reviewed, studied and considered the following information:

1. Report on Growth Alternatives.

2. The Staff Report on the Comprehensive Plan Amendment to Implement Provisions of the Ventura County Air Quality Management Plan (AQMP).

3. The Addendum to the Master EIR on the Land Use/Circulation Plan.

4. The recommendation of the Ad Hoc Committee on Implementation of the AQMP.

5. Written and oral testimony of interested citizens, developers and property owners.

6. Other miscellaneous reports and all other information and data presented during the course of public hearings held in connection with consideration of the proposed amendment to the Phasing Plan of the City's adopted Comprehensive Plan.

SECTION 2: The City Council hereby adopts an amendment to the Phasing Program of the City's Comprehensive Plan, which amendment consists of the following policies:

1. THE CITY OF SAN BUENAVENTURA HEREBY ESTABLISHES THE FOLLOWING MAXIMUM POPULATION FIGURES FOR THE SAN BUENAVENTURA GROWTH AREA: 89,000 IN 1985, 93,000 IN 1990 AND 111,000 IN THE YEAR 2000.

   Explanation

   The City has established these figures in order to help in achieving and maintaining the National Ambient Air Quality Standards in accordance with the Ventura County Air Quality Management Plan. They are intended as limits, not to be exceeded; actual population growth may be less than the adopted numbers. In adopting these figures, the City Council recognizes and affirms the findings made by the Ventura County Board of Supervisors in adopting the AQMP:

a. "There is a direct relationship between the quality of the County's air and the health, safety and welfare of the County's residents.

b. "The quality of the County's air has deteriorated to the point where it frequently fails to meet minimum state and federal ambient air quality standards designed to protect health, safety and welfare.

c. "Failure to meet such state and federal standards in the County results in aggravation of the illness of persons suffering from asthma or chronic lung diseases, an increase in the work of breathing for many persons, impairment of the performance of persons engaged in strenuous activities, significant health care costs attributable to air quality related health problems, and air pollution damage to crops amounting to millions of dollars annually.

d. "There is a direct measurable relationship between population growth and emissions which contribute to the deterioration of air quality in the County.

e. "The AQMP has identified all reasonably available control measures for the control of emissions in the County and has established the maximum rate of population increase which can be accommodated in various parts of the County, assuming the implementation of all such reasonably available control measures, without precluding ultimate compliance with the state and federal ambient air qualtiy standards.

f. "Regulations of population growth in the County in accordance with the AQMP, in addition to the implementation of all other reasonably available control measures for the control of emissions, is necessary in order to ensure compliance with federal ambient air quality standards and to protect adequately the public health, safety and welfare."

2. THE COUNCIL SHALL ADOPT BY SEPARATE RESOLUTION A MAXIMUM ANNUAL ALLOCATION SCHEDULE SHOWING THE ANNUAL POPULATION INCREASE FOR THE SUCCEEDING FIVE YEARS. THIS SCHEDULE SHALL BE REVIEWED ANNUALLY AS OUTLINED IN POLICY NO. 5.

Explanation

In order to implement the adopted population figures, and especially to ensure that growth is properly distributed over the five-and ten-year spans between adopted figures, it is necessary to adopt an annual allocation schedule breaking these figures down into yearly increments. This schedule will be reviewed annually, in conjunction with the Annual Community Development Report, and may be revised as required.

3. THE COUNCIL SHALL ADOPT BY SEPARATE RESOLUTION A PROJECT EVALUATION PROGRAM TO IMPLEMENT THE ANNUAL ALLOCATION SCHEDULE.

Explanation

The project evaluation program will ensure that approvals of new residential units are in conformance with the annual allocation schedule, and that the projects which are approved are those which would minimize air pollution and other environmental impacts, minimize capital improvement expenditures, and otherwise have a beneficial effect on the City. This program will also be reviewed annually, in conjunction with the Annual Community Development Report, and may be revised as necessary.

4. ALL DECISIONS ON LAND USE MATTERS SHALL BE CONSISTENT WITH THE POPULATION LIMITS SET FORTH IN POLICY NO. 1 ABOVE AND WITH THE ANNUAL ALLOCATION SCHEDULE AND PROJECT EVALUATION PROGRAM ADOPTED PURSUANT TO POLICIES 2 AND 3 ABOVE.

Explanation

This policy will ensure that all land use decisions are in conformance with the adopted population figures.

5. THE CITY COUNCIL SHALL REVIEW THE ANNUAL ALLOCATION SCHEDULE AND THE PROJECT EVALUATION PROGRAM ON AN ANNUAL BASIS, IN CONJUNCTION WITH ITS REVIEW OF THE "ANNUAL COMMUNITY DEVELOPMENT REPORT."

Explanation

Changing conditions related to overall development patterns, housing market trends, and community goals and objectives necessitate a regular review of both the annual population and housing schedule and the criteria being used to evaluate projects. By scheduling this review in conjunction with the annual review of the Phasing Program, the City can ensure coordinating of its policies on location, timing and magnitude of new residential growth.

PASSED AND ADOPTED this 20th day of August, 1979.

Barbara J. Kam,

City Clerk

RAL/ks/S/8//423

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. Kam, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 20th day of August, 1979, by the following vote:

AYES: Councilmembers Chaudier, Harrington, McWherter, and Henson.

NOES: Councilmembers Garrett, Monahan, and Ellison.

ABSENT: None.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 21st day of August, 1979.

Barbara J. Kam

City Clerk

PROJECT EVALUATION PROGRAM

A. Applicability

This program shall apply to all residential construction in the Growth Area of the City of San Buenaventura, including, but not limited to, single-family units, mobile homes, condominiums, and apartments. The following shall be excluded from this program:

1. A single-family home on an existing lot of record;

2. Residential development of four (4) or fewer units, whether single-family units, condominiums, apartments, or mobile homes.

3. Residential developments of five (5) to twenty (20) units (up to a maximum of 20% of the available annual allocation), whether single-family units, condominiums, apartments, or mobile homes. This exemption shall apply only to a project which is developed in its entirety on a site which would not accommodate more than 20 units and which is an in-fill project. All projects requesting an exemption under this provision shall be subject to and processed under the "AQMP Implementation Guidelines Relative to Small In-Fill Projects of Five (5) to Twenty (20) Units."

4. Replacement housing for units demolished on the same parcel. For Redevelopment projects, such replacement housing may be either within the Redevelopment Project Area, or elsewhere. This exemption shall apply only on a one-for-one basis; that is, one unit exempted for each unit demolished. If the replacement project includes more units than were demolished, then only the number of equivalent to the units demolished shall be exempted. If the project has no more than four (4) units in addition to the exempted units, it would still be exempt under No. 2 above.

   If the project has no more than twenty (20) units in addition to the number of units being replaced and otherwise meets the requirements of No. 3 above, it would still be exempt.

5. Rental housing projects for "low income" households as defined by HUD Guidelines.

6. Rental housing projects (up to 20% of the annual allocation shall be reserved for such projects). Rental units approved under this allocation must remain as rental units for a minimum of five (5) years from the date of issuance of the occupancy permit(s).

7. Residential care facilities for senior citizens with units which are not designed as self-sufficient units; that is, they do not include kitchen facilities. If a project includes both self-sufficient and non-self-sufficient units, only the latter is exempt. This population will be reflected under the exempted population category.

No residential development, other than those exempted units listed above, shall be undertaken, and no building permits shall be issued, unless the development has been approved under the provisions of this program.

Projects which were granted population allocations prior to July 1, 1983, shall continue to be governed by the regulations contained in City Council Resolution No. 79-122 and subsequent amendments thereto.

B. Population Allocation Application Deadline

Complete application packages, as set forth in Section "C" below, shall be submitted between September 1 and October 31. Applicants are strongly encouraged to meet with City staff at least six (6) months prior to the final deadline, in order to review the project and determine what is required for the submittal.

C. Submittal Requirements

The application package shall include the following:

1. Completed application form for Project Evaluation Program and any fees which may be set by the City Council;

2. All submittal materials and fees required for environmental assessment;

3. A project description, including maps and written text as necessary to indicate location, density and type of development. By way of example, the following should be included in the application submittal: site plan; lot layout if a subdivision will be required; typical elevations of all buildings; and other data required to make a full evaluation of the project. Applicant should keep in mind that it is the intent of this process to draft proposed conditions of approval for a population allocation which would generally be used as a basis for conditions in connection with future discretionary permits.

4. Soils and geology report for all hillside projects.

Projects not in conformance with the Comprehensive Plan, or lacking the required environmental questionnaire, will not be accepted for review. Soils and geology reports, submitted in conjunction with hillside projects, shall be reviewed by an independent consultant. If it is determined that geologic hazards cannot be mitigated, the project shall not be allowed to proceed. Applicants are strongly

encouraged to meet with the Planning staff at least six (6) months prior to the deadline, in order to determine whether their project is in conformance with the Comprehensive Plan and whether a soils and geology report is required.

D. Project Review

1. All applications will be processed through an allocation review process, including E.I.R. Committee, a staff committee of the various City departments which may have a role in evaluating a project, the Planning Commission and the City Council. Allocation applications will be individually scheduled for hearings before the Planning Commission and City Council at the earliest possible date, taking into account time necessary for preparation of environmental documents, staff review and public notices.

2. If the E.I.R. Committee determines that an Environmental Impact Report or Mitigated Negative Declaration is required for a proposed project, then the Committee will adopt a specific schedule for preparation of the environmental document. Failure of the applicant to comply with this schedule shall result in the application being deemed denied without prejudice and no further processing of the application will occur.

3. Planning Division staff will prepare a suggested point score for each application as a part of its staff report based on the Project Evaluation Criteria. The staff will review the suggested point score with the applicant. The Planning Division staff will prepare, in consultation with other appropriate City staff, draft conditions of approval of a population allocation relating to each proposed project. Said conditions, as well as the suggested point score, will be presented to the Planning Commission at a public hearing.

4. The Planning Commission will hold a public hearing on each application, at which time the Commission may receive comments from the applicant as to suggested point score. The Commission will, in turn, assign a tentative point score to the proposed project. The Planning Commission will approve, amend or reject the proposed draft conditions of approval of a population allocation. Rejection of the draft conditions will be considered a recommendation to the City Council that the proposed project should not be considered for further processing of a population allocation and for subsequent discretionary permits.

5. Upon action of the Planning Commission, the City Council will hold a public hearing on the application, at which time the City Council will consider the tentative point assignment made by the Planning Commission, as well as the draft conditions of approval of a population allocation. The City Council may approve the conditions as recommended by the Planning Commission, add to, delete from, or amend said conditions, or may take an action to reject all conditions in the event that the City Council finds that the project should not be allowed to be processed for a

population allocation and subsequent discretionary permits. The approval of the City Council of conditions of approval of a population allocation shall not be considered the approval of said allocation, nor shall it be considered approval of any required discretionary permit (i.e., zone change, tentative tract map, planned development permit, annexation, etc.). While the intent of the process will be to identify the probable conditions that will be involved in future approvals, nothing shall limit or preclude the City from imposing additional conditions or requirements, or from changing conditions, pursuant to its rights and power under law.

E. Public Hearings on Population Allocations

The Planning Commission shall hold a public hearing on the first Tuesday of May of each year. The purposes of this hearing shall be to:

1. Finalize the point score for all of the applications which have previously been reviewed in accordance with Section "D" above; and

2. Make a recommendation to the City Council as to which applications should receive a population allocation.

Prior to the Planning Commission hearing, the Planning Division will prepare a report to the Commission indicating the preliminary point scores of all proposed projects. Depending on its location, each proposed project will be evaluated. Applications within each category will be ranked separately for informational purposes.

Within 30 days of the action of the Planning Commission to make a recommendation to the City Council, the Council will hold a public hearing to consider the recommendation of the Planning Commission and take final action to grant a population allocation(s). All proposed projects which fail to receive a population allocation shall be deemed denied without prejudice and no further processing or action shall be necessary.

F. Final Allocation

While it is the intent of this program to award allocations to the higher scoring projects, the Planning Commission and City Council reserve the right to exercise discretionary judgment in recommending and awarding allocations to projects which are in the higher scoring range, but are not necessarily the highest scoring projects. This selection may be done provided that specific findings of fact can be made. Such findings may be made when the project will ensure a variety of housing types and designs; encourage competition in the housing market; preserve flexibility in the awarding of future years' allocations; provide in-fill development; or for other good reasons.

Optional features will be granted points only when the developer agrees to stipulate costs, availability, and developer responsibilities at the time of granting the allocation.

G. Reservations

No more than 100 units of each year's allocation shall be awarded to any one project unless a greater allocation is required to accommodate mortgage revenue bond financing. Larger projects may be awarded a reservation of future years' allotments. The City Council may grant no more than 50% of any year's allocation in advance unless the additional reservation is needed to accommodate a mortgage revenue bond program.

H. Discretionary Permits

Upon approval of a population allocation, the applicant shall apply promptly for all discretionary permits, in no event later than 30 days after an allocation is granted. If the applicant fails to apply for and to diligently pursue required discretionary permits and obtain approval of same within six (6) months of application therefor, the applications for the discretionary permits shall be deemed denied and the population allocation shall be automatically revoked unless the Planning Commission extends the terms of the allocation as provided for in Section I below.

I. Expiration of Allotments

If the applicant has received all necessary permits and approvals, and construction of the project is not commenced within one year after recordation of the final map, or other final planning approvals, and construction is not diligently pursued, then the allotment shall expire and the unused allocation shall be added to the next year's allotment. The allotment shall also expire, and be added to the next year's allotment, if any permits expire which are received in conjunction with the project.

Start of construction or commencement of construction shall not be deemed to have occurred until and unless each of the following has occurred:

a. All zoning and related approvals become effective;

b. All required building and grading permits for the project have been issued;

c. All trenches are excavated, forms erected, and all materials for the foundation delivered on the job such that the project has received "Foundation Inspection" approval from the Building and Safety Division in accordance with Uniform Administrative Code (1982 ed.), Section 305(e)(1), and all in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items must be in place such that the project

is ready for and has further received "Concrete Slab or Under-Floor Inspection" and approval from the Building and Safety Division in accordance with Uniform Administrative Code (1982 ed.), Section 305(e)(2). The Uniform Administrative Code is adopted by reference commencing with Section 3111 of the City of San Buenaventura Ordinance Code.

The Planning Commission may, for good cause, grant a one-year extension of the award. In determining whether there is good cause to extend such award, the Commission shall consider what progress has been made toward completing the project, unforeseen circumstances which have delayed the project and the likelihood of the project meeting the extended deadline. The Commission may establish a specific schedule for filing of applications and/or other measures of progress as part of any extension.

J. Reallocation

An expired allotment may be reallocated to other projects which have received allocations for later years and which are prepared to begin construction at an earlier date. The City Council may also revise the allotment schedule for any project which has previously received an allotment or has been considered to have the equivalent of an allotment and for which building permits have not been issued. Reallocations may occur during the annual allocation hearing, or at a special meeting which may be set by the City Council for this purpose.

Prior to revising the allotment schedule for a project, the City shall notify the project applicant, as well as applicants for other projects who may wish to have their allotment schedules revised.

K. Non-Transferability of Allocations

It is the intent of the City Council that persons should not apply for population allocations unless they have the actual intent to construct the project for which a population allocation is requested.

No population allocation under this program shall be transferable except upon good cause and approval of the City Council. Any transfer or purported transfer of an allocation without such approval shall be null and void.

L. Criteria

Residential projects shall be evaluated according to the following criteria and point system:

1. Criteria 1, 2, 4, 5, 8, 9, 11, 12 and 17 are mandatory criteria and are either approved or disapproved. If a project does not receive approval of a mandatory criteria, the project will not be considered.

2. Public Service Facilities (38 points and 9 mandatory criteria).

The below criteria shall be based on the impacts after all developer-financed improvements or contributions to future improvements have been considered. In other words, developers may mitigate public service impacts, and obtain a higher allocation, by financing required public service improvements.

Criteria	Points
a. Sewer	
(1) All sewer lines between the project and the wastewater treatment plant affected by the project have adequate capacity to serve the project.	mandatory
(2) Construction of additional lift stations is not required.	mandatory
(3) The project will complete needed offsite sewerage improvements which would benefit more than the subject project.	8
b. Water	
(4) Water lines have adequate capacity to provide minimum fire flow requirements.	mandatory
(5) Water storage capacity if adequate to provide minimum fire flow requirements.	mandatory
(6) The project will complete a needed water system improvement which would benefit more than subject project.	4
(7) The project is in the Casitas Municipal Water District.	4
c. Drainage	
(8) The project will not cause significant offsite drainage problems.	mandatory
(9) The project will not significantly aggravate existing drainage problems.	mandatory
(10) The project will help solve existing drainage problems.	4

Criteria	Points
d. Streets	
(11) The project will not generate enough traffic to exceed the design capacity of the road network, or require a City-financed traffic signal.	mandatory
(12) The project will not generate enough traffic to aggravate an existing problem.	mandatory
(13) The project will complete a needed improvement in the City's street circulation system, as set forth in the City's Circulation Plan and/or Capital Improvement Program.	6
(14) The project will complete a needed improvement in the City's Bikeway System, as set forth in the Select System of Bikeways.	2
e. Parks	
(15) The project will provide sufficient private developed neighborhood recreational areas and facilities for the project population.	6
(16) The project will dedicate and improve a linear park, or portion of one, as set forth in the Future Land Use Map and Linear Circulation/Park System Guidelines.	4
f. Fire Protection	
(17) The project is within the 4-minute response time radius of a City fire station.	mandatory
3. Environmental Impacts (46 points)	
(18) The project is within one mile of a major employment center (i.e., County Government Center, Arundell Community, Buenaventura Shopping Center, Downtown/Avenue Area, Saticoy Area, and Montalvo Area).	8
(19) The project is within 1/4-mile of an existing SCAT bus route.	6

Criteria		Points
(20)	The project preserves existing natural features if feasible and desirable.	6
(21)	The project preserves identified cultural resources.	
	- designated historical buildings	4
	- archaeological sites	4
(22)	The project is not located on prime agricultural land.	6
(23)	The project constitutes "fill in" development (the site has all required public services and is bordered on three or more sides by existing urban development).	12

4. Project Design (33 points)

(24)	Project incorporates energy conservation measures which exceed State Energy Building Regulations and which can be shown to be cost-effective to the customer.	14
(25)	Project incorporates non-required water conservation measures.	4
(26)	Site Design	15

(a) Lot and/or unit layout.

(b) Location of structure on lot(s).

(c) Relationship of buildings to natural landscape and surrounding land uses.

(d) Efficiency of circulation - automobile, pedestrian, access to roads, on-site circulation, separation of pedestrian and auto traffic.

(e) Open Space - provides buffer between buildings and/or adjacent uses, provides visual break.

(f) Effect on surrounding development-complements or upgrades area.

(g) "Defensible space" qualities.

Criteria	Points
5. Bonus Points (a maximum of 30 bonus points)	
a. Project provides housing to serve identified housing needs.	
- senior citizen housing.	20
- rental housing.*	20
- low-moderate income - subsidized units and/or units financed through Mortgage Revenue Bonds and/or the City's Affordable Housing Program.	30
b. Project is located in an area identified in Housing Assistance Program as eligible for rehabilitation and improvement funds (Census Tracts 22, 23, 24 and 26).	5

*Rental units earning bonus points under this criterion must remain as rental units for a minimum of five (5) years from the date of issuance of the occupancy permit(s). No single-family units, condominiums, or townhouses will be given bonus points under this provision. Staff will work with developers in qualifying for these programs.

Population Factors. Total population for a given project will be calculated according to the following factors:

1. Single Family Units 2.8 people/unit

   Single family units are defined to be those which do not share a common wall with any other unit. These may be zero lot line units, as long as there is not a common wall.

2. Condominiums, Townhouses, Duplexes 2.0 people/unit

   This category comprises all "for-sale" units which share a common wall with another unit. Includes condominiums, townhouses, duplexes, and zero lot line units with common walls.

3. Apartments 1.7 people/unit

4. Mobile Homes 1.7 people/unit

PROJECT EVALUATION PROGRAM GUIDELINES

I. Public Works Criteria

A. Mandatory Criteria

Criteria	Points
(1) All sewer lines between the project and the wastewater treatment plant affected by the project have adequate capacity to serve the project.	
(2) Construction of additional lift stations is not required.	
(4) Water lines have adequate capacity to provide minimum fire flow requirements.	
(5) Water storage capacity is adequate to provide minimum fire flow requirements.	
(8) The project will not cause significant off-site drainage problems.	
(9) The project will not significantly aggravate existing drainage problems.	
(11) The project will not generate enough traffic to exceed the design capacity of the road network or require a City-financed traffic signal.	
(12) The project will not generate enough traffic to aggravate an existing problem.	
(17) The project is within the 4-minute response time radius of a City fire station.	

Public works criteria which are mandatory will be reviewed and evaluated by the Subdivision Committee. For each criterion, the Committee will make one of the following findings:

1) The project meets the criterion.

2) The project meets the criterion, subject to one or more draft conditions of approval which require a developer-financed improvement or contribution or a future improvement.

Criteria	Points
3) The project cannot meet the criterion. In cases where conditions of approval are required to meet a criterion, the developer will be required to meet substantially the same condition later as a condition of tentative map or other approvals.	

If the project does not receive approval of a mandatory criteria, the project will not be considered.

B. Non-Mandatory Criteria

Criteria	Points
(3) The project will complete needed offsite sewerage improvements which would benefit more than the subject project.	8
(6) The project will complete a needed water system improvement which would benefit more than the subject project.	4
(10) The project will help solve existing drainage problems.	4
(13) The project will complete a needed improvement in the City's street circulation system, as set forth in the City's Circulation Plan and/or Capital Improvement Program.	6
(14) The project will complete a needed improvement in the City's Bikeway system, as set forth in the Select System of Bikeways.	2

Public works criteria which are non-mandatory, and relate to improvements which will benefit an area greater than the project site, will be evaluated by the Public Works Department in conjunction with the Subdivision Committee. Based on existing and available information, a list of all such improvements for each project shall be compiled and ranked by the Committee.

Criteria	Points
In general, full point allocation should be made for a general improvement which provides a significant benefit to the community with the cost to be borne primarily by the developer. Lesser point credit should be given to minor improvements which are either of primary value to proposed development, or where project costs will be borne by City and/or other developers as well as the applicant. No points are given for improvements which have already been completed. Improvements are ranked according to their value in alleviating existing problems or preventing future ones, and not on the cost of improvement.	
(7) The project is in the Casitas Municipal Water District. See attached Water Service Areas Map.	4
(15) The project will provide sufficient private developed neighborhood recreational areas and facilities for the project population. A standard of 1.5 acres of usable parkland to every 1,000 population will be used in awarding points. Full point credit will be given to a project which meets this standard. Lesser credit would be given to those projects which provide limited recreational facilities that would reduce demand for public facilities. In cases where facilities other than parkland were provided (e.g., pools, tennis courts), points are awarded according to the ratio of facilities to people. Thus, even if two projects provided exactly the same facilities, if one has a higher population it would receive fewer points.	6

Criteria	Points
(16) The project will dedicate and improve a linear park, or portion of one, as set forth in the Future Land Use Map and Linear Circulation/Park System Guidelines.	4
Two factors are considered in evaluating linear park improvements: (1) acreage and (2) whether the segment constitutes a line between existing linear park improvements.	
More weight will be given to acreage than to whether the segment constitutes a link, Acreage will be evaluated according to the project population; that is, a project with fewer people would receive more credit for the same acreage than a project with a larger population.	
II. Environmental Factors	
(18) The project is within one mile of a major employment center (i.e., County Government Center, Arundell Community, Buenaventura Shopping Center, Downtown/Avenue Area, Saticoy Area and Montalvo Area).	8
8 points will be given to projects within 1/2 mile of a listed center; 4 points will be given for a project within one mile, and 2 points for projects within two miles (bicycling distance). No extra points will be given if a project is near more than one center.	
(19) The project is within 1/4 mile of an existing SCAT bus route.	6
6 points will be given to projects within 1/4 mile of an existing SCAT route; 3 points will be given to projects within 1/2 mile of a route.	

Criteria	Points
(20) The project preserves existing natural features if feasible and desirable.	6
"Natural features" include, but are not limited to, barrancas, trees and topographic variations. Projects which have existing desirable natural features may receive up to 6 points, depending on the extent to which these features are preserved. If the features are not preserved, the project may lose up to 6 points. The developer, however, will not be penalized if natural features must be removed due to public works improvements.	
(21) The project preserves identified cultural resources.	
- designated historical buildings	4
- archaeological sites	4
This criterion will be scored in the same manner as No. 19. Up to 4 points may be awarded for preservation of historical buildings and 4 points for preservation of archaeological sites. A project which has such a feature, but does not preserve it, may lose up to 4 points.	
(22) The project is not located on prime agricultural land.	6
6 points will be allocated if project is located on land which is not classified as "prime" according to the Williamson Act definition; lesser credit may be given to projects on prime land which have limited agricultural viability due to size, configuration or development on adjacent parcels.	
(23) The project constitutes "fill-in" development (the site has all required public services and is bordered on three or more sides by existing urban development).	12
The intent of this criterion is to encourage development of smaller parcels which are surrounded by development, have all or most public service facilities, and are too small to be agriculturally viable.	

III. Project Design Criteria

Criteria	Points
(24) Project incorporates energy conservation measures which exceed State Energy Building Regulations and which can be shown to be cost-effective to the consumer.	14

Non-required energy conservation devices can range from added insulation to active solar energy devices providing space and water heating. Additional information can be obtained from the sources listed on the attached Table 2.

Proposed energy conservation devices, which exceed State Energy Building Regulations, should be described in sufficient detail to demonstrate that the device is feasible and cost-effective to the consumer. Information should also be submitted describing how these measures will exceed the State Regulations.

The measures proposed will be ranked and rated individually, based on the effectiveness of the measure in the specific project. Items that are proposed, but which are mandatory, such as electric pilot appliances, are not assigned points.

(25) Project incorporates non-required water conservation measures.	4

See the attached Table 1 for a partial list of water conservation measures and suggested awards for them. These point awards are not final. Additional measures not on this list are welcomed and will be evaluated according to their effectiveness.

Irrigation systems that detail a variety of water conservation measures (moisture sensors, low volume heads) that would accommodate the entire range of plant materials proposed are rated higher than those that rely only on one method (drip system) that cannot be used throughout the landscape plan.

Criteria	Points
Some points may be awarded for projects which leave a large proportion of the site in a natural state, with native drought-resistant plants, if a guarantee is provided that the area will remain so.	
(26) Site Design	15
(a) Lot and/or unit layout.	
(b) Location of structure on lot(s).	
(c) Relationship of buildings to natural landscape and surrounding land uses.	
(d) Efficiency of circulation -- automobile, pedestrian, access to roads, on-site circulation, separation of pedestrian and auto traffic.	
(e) Open Space -- provides buffer between buildings and/or adjacent uses, provides visual break.	
(f) Effect on surrounding development -- complements or upgrades area.	
A project which is of equal or better quality than adjacent existing development, and which does not conflict with adjacent uses, would receive points for complementing or upgrading the area.	
(g) "Defensible space" qualities.	
In evaluating general project design criteria, "effect on surrounding development" and "defensible space qualities" will be weighted equally. A project with good defensible space qualities is designed so that project entrance, open spaces, recreational areas, and parking areas are visible from units, and units are oriented to encourage contact among residents.	

Criteria	Points

Custom Homes

(24-25) Energy and Water Conservation

In order to be eligible for points under the energy and water conservation criteria, developers of custom homes must provide a guarantee that the proposed measures or devices will in fact be incorporated into the units when they are built. Guarantees that these items will in fact be incorporated into the units must be provided through such measures as CC&R's, deed restrictions, or other legally binding devices. These devices should include a means by which the City could enforce the requirements.

(26) Site Design

In order to gain points under Criterion 25, developers of custom projects should include with their applications a statement addressing the seven (7) subheadings (lot and/or unit layout, location of structure on lot(s), etc.) and providing as much information regarding each one as possible. For example, the discussion could discuss and specify how units would be oriented to take advantage of views, and how much grading would be required. Guarantees that these items will in fact be incorporated into the units must be provided through such measures as CC&R's, deed restrictions, or other legally binding devices. These devices should include a means by which the City could enforce the requirements.

Criterion 25(f) and (g) will be evaluated in the same manner for custom units as for other projects.

Criteria	Points
Bonus Points (Maximum of 30 points per project)	
a. Project provides housing to serve identified housing need.	
- senior citizen housing.	20
- rental housing.*	20
- low-moderate income -- subsidized units and/or units financed through Mortgage Revenue Bonds and/or the City's Affordable Housing Program.	30
b. Project is located in an area identified in Housing Assistance Program as eligible for rehabilitation and improvement funds (Census Tracts 22, 23, 24 and 26).	5

*Rental units earning bonus points under this criterion must remain as rental units for a minimum of five years from the date of issuance of the occupancy permit(s). No single-family units, condominiums, or townhouses will be given bonus points under this provision.

Staff will work with developers in qualifying for these programs.

QUALIFYING FOR BONUS POINTS

Projects can earn bonus points in several ways.

1. By selling or dedicating land to the Housing Authority, Redevelopment Agency, or other non-profit housing organization for the specific purpose of providing low and moderate income subsidized units.

2. By leasing units to the Housing Authority, Redevelopment Agency, or other non-profit housing organization. Developers may lease units for use as low-moderate income subsidized units in a variety of Federal or State housing programs.

3. By developing subsidized units. Developers can apply to HUD independently for approval and funds to build subsidized units.

4. By developing units subsidized through mortgage revenue bond financing or in conformance with the Affordable Housing Program. Developers can work with City staff to obtain information regarding those programs.

Bonus points will not be awarded until proof is submitted that a firm agreement has been reached with the Housing Authority, Redevelopment Agency, HUD, other non-profit organization for provision of the low income units, or as otherwise acceptable to City staff.

Points will generally be awarded based on the percent of subsidized units to total units (subsidized plus market rate). The higher the percentage of subsidized units, the more points will be awarded. Point awards will also be based on the extent of the developer's contribution to the completion of the units.

TABLE 1

NON-REQUIRED WATER CONSERVATION MEASURES

Measures

Drip Irrigation System
Drought Resistant Plant Materials
Varied Irrigation System: Injection heads; low precipitation heads; moisture sensors; low volume heads
Option of Water Conservation Irrigation System provided to Purchasers
Developer Supply Homeowners with Conservation Information
Front Yards planted with Lawn, Shrubs and Irrigation System

This is a list of measures that have been proposed for previous projects. It is obviously not all the measures that can be used. Please use your discretion and creativity in your own proposal.

TABLE 2

ENERGY CONSERVATION - SOURCES LIST

1980 Residential Building Standards Development Project, Implementation Project Report No. 14, August 1980.

Regulations Establishing Energy Conservation Standards for Residential and Non-Residential Buildings, Cal-Energy Commission, Conservation Division, July 26, 1978.

Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of H.U.D., Office of Policy Development and Research, November 1978.

Minimum Energy Dwelling (M.E.D.) Wookbook, An Investigation of Techniques Materials for Energy Conscious Design, Department of Energy, 1978.

Energy Conservation Design Manual for New Residential Buildings, State of California, Energy Resources Conservation and Redevelopment Commission, Conservation Division, February 1978.

Energy Conservation Building Code Workbook, City of Davis, July 1976.

The Value of Thermal Insulation in Residential Construction: Economics and the Conservation of Energy; Moyers, John C., Oak Ridge National Laboratory, December 1971.

The Davis Experiment, One City's Plan to Save Energy, The Elements, September 1977.

*Energy Building Regulations for New Residential and Non-Residential Buildings, California Energy Commission, Conservation Division, adopted by the California Energy Commission on July 15, 1981.

New Residential Building Standards Energy Conservation Manual - California Climate Zone 6, California Energy Commission, certified January 1982.

ANNUAL ALLOCATION SCHEDULE

Year	Population Allocated	Dwelling Units Allocated	Dwelling Units Completed
FY 1979-80	802	334	2,176[1/]
FY 1980-81	802	334	334
FY 1981-82	802	334	334
FY 1982-83	802	334	334
FY 1983-84	800	333	334
FY 1984-85	800	333	333
FY 1985-86	800	333	333
FY 1986-87	800	333	333
FY 1987-88	800	333	333
FY 1988-89	800	333	333
FY 1989-90	800	333	333
FY 1990-91[2/]			

1/ Includes already approved projects totaling 2,076 additional units plus 100 units in the reserve allocation.

2/ The allocation for FY 1990-91 will be determined upon review of the 1985 Annual Community Development Report.

IMPLEMENTATION GUIDELINES RELATIVE TO EXEMPTION OF SMALL INFILL PROJECTS OF FIVE TO TWENTY UNITS

Under Section (A)(3) of the AQMP Project Evaluation Program, as amended in Resolution No. 83-44

A. APPLICABILITY

These guidelines explain the application of the exemption for all residential projects between five and twenty units which constitute a single and complete infill project, as provided for under Section (A)(3) of the AQMP Project Evaluation Program as amended in Resolution No. 83-44 (AQMP). No such project can qualify for such exemption unless it is located in an area of the San Buenaventura Growth Area that is appropriately phased for development, and unless it is, in all other respects, in compliance with the City's General Plan. Units which may be exempt shall include single family units, mobile homes, condominiums, and apartments.

"Infill development" means the site has all required public services and is bordered on three or more sides by existing urban development.

"Single and complete project" means the site, when developed in its entirety, can accommodate no more than 20 units.

B. PROCESS

1. Request for Exemption

An applicant wishing approval of a project under this exemption shall submit a request for exemption containing the following (No fees or transparencies are required):

a. Completed project application form
b. Four (4) copies of a site plan

Staff shall note the time and date of the submittal.

2. EIR Committee Review

The EIR Committee shall review the request for exemption for conformance with the above criteria and with the General Plan and AQMP Implementation Program.

Based on the amount of population available under this exemption, the EIR Committee shall take one of the following actions:

a. If the amount of available population is sufficient to accommodate the entire proposed project, the EIR Committee shall notify the applicant in writing that he or she may proceed to file a complete application for discretionary permits with the Planning Division. Said application shall be filed within 30 days from the date which appears on the letter of notification. Failure to do so will result in the applicant losing his or her position as an applicant under this exemption and the request shall be deemed denied without prejudice.

b. If the amount of available population is not sufficient to accommodate the entire project under this exemption, the proposed request for exemption shall be denied without prejudice. However, the applicant's request will be placed on a "waiting list" in chronological order based on the date and time of filing of the request. When and if additional population becomes available, a letter will be sent to the applicant notifying him or her of the opportunity to submit a full application as outlined in (a) above. Failure to file a complete application within 30 days from the date of the letter giving such notification shall result in the applicant losing his or her opportunity to apply under this exemption. Projects on the "waiting list" for exemption shall also have the option of concurrently applying for a population allocation through the regularly established AQMP process.

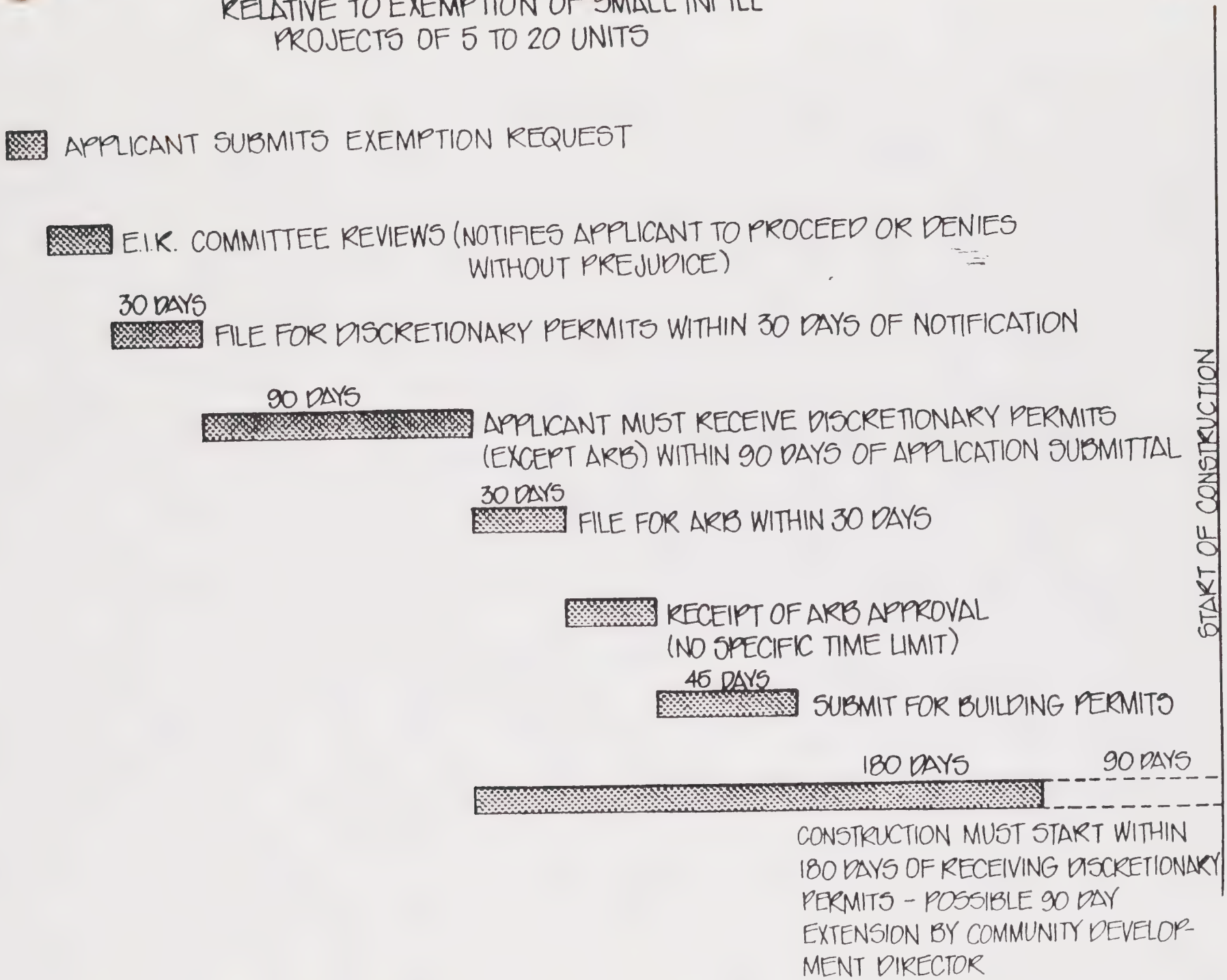
C. PROCEEDING THROUGH DISCRETIONARY PERMITS TO START OF CONSTRUCTION

Once a project has been submitted to the Planning Division in accordance with this exemption, the applicant will be required to diligently pursue the project to completion. If this is not done, the exemption will be lost and the population attributable to the proposed project will be made available for others wishing to proceed under this exemption. All discretionary approvals (with the exception of ARB approval) must be received within 90 days (unless the City Council, on application, grants a short extension for good cause) from the date the application is deemed complete, or a project proposed under this exemption procedure shall be deemed denied without prejudice and the exemption shall be lost. Further, if any discretionary approval is finally denied at any earlier time, the exemption shall be similarly lost. In order to ensure diligent processing by the applicant, the following further requirements shall apply:

Following the receipt of all discretionary permits from the Planning Commission and City Council (if applicable), the applicant shall have 30 days in which to submit an application for Architectural Review Board review and approval. Within 45 days from the date of ARB approval, the applicant shall submit an application for building permits to the Division of Building and Safety.

Unless construction of the structure(s) is commenced not later than 180 days (six months) after approval by the Planning Commission and/or City Council of all discretionary permits and is diligently pursued thereafter, the AQMP exemption allocated to this project shall automatically become null and void. However, the Director of Community Development may grant up to a 90 day extension for good cause. Loss of an AQMP exemption allocation will result in the project being deemed denied without prejudice. Appropriate conditions will be attached to discretionary permits in accordance with this policy.

IMPLEMENTATION SCHEDULE
RELATIVE TO EXEMPTION OF SMALL INFILL PROJECTS OF 5 TO 20 UNITS



RESOLUTION NO. 76-207

RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING REVISED LAND USE AND CIRCULATION ELEMENTS AS PART OF THE CITY'S COMPREHENSIVE GENERAL PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has duly reviewed, studied, and considered the following information:

- The Land Use Workbook
- The Community Profiles
- The Findings Booklet
- The Environmental Impact Report on the Land Use and Circulation Element
- The Recommendations of the Planning Division, Comprehensive Plan Advisory Committee, and the Planning Commission
- Alternative Phasing Programs
- Written and oral testimony of interested citizens, developers, and property owners
- Other miscellaneous reports and all other information and data presented during the course of public hearings held in connection with consideration of the proposed revisions to the Land Use and Circulation Elements of the City's adopted Comprehensive General Plan

SECTION 2: The City Council hereby adopts a revised Land Use Element to the City's Comprehensive General Plan, which revised Land Use Element consists of the following items annexed hereto and incorporated herein by this reference:

1) Land Use Policies (Definitions and Intent and Rationale Statements)
2) Future Land Use Map
3) Phasing Policies and Exceptions
4) Phasing Map

SECTION 3: The City Council hereby adopts a revised Circulation Element to the City's Comprehensive General Plan, which revised Circulation Element consists of the following items annexed hereto and incorporated herein by this reference:

1) Circulation Policies
2) Circulation Plan and Long Range Circulation System Map

Passed and adopted this 6th day of December, 1976.

City Clerk

76-207/62

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting thereof, held on the 6th day of December, 1976, by the following vote to wit:

AYES: Councilmembers Kosmo, McWherter, Laufer and Ellison.

NOES: Councilmembers Garrett and Kountz.

ABSENT: Councilmembers None.

ABSTAIN: Councilmember Harrington.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 7th day of December, 1976.

Barbara J. Kam
City Clerk

CIRCULATION ELEMENT

SECTION III

CIRCULATION ELEMENT

TABLE OF CONTENTS

CIRCULATION ELEMENT

INTRODUCTION

The Circulation Element was adopted by the City Council in 1976 and is intended to provide the City with policies for dealing with a wide range of circulation issues, including street beautification, bikeway planning, parking, and public transit.

The element has, as its main policy tool, a Circulation Plan map which designates future road improvements and extensions. The map recognizes both the City's 1990 agricultural commitment in the Open Space and Conservation Element, as well as the long-term possibility of full urban development in the Planning Area.

A. LONG-RANGE CIRCULATION SYSTEM

1. ADOPT THE "CIRCULATION PLAN" MAP, RECOGNIZING THE 1990 AGRICULTURAL COMMITMENT OF THE OPEN SPACE PLAN, AS THE OFFICIAL CIRCULATION PLAN OF THE CITY. The Circulation Plan map includes two distinct circulation systems.

   1) A circulation system recognizing the "agriculture use 1990" designations of the Open Space Plan;

   2) A long-range circulation system which assumes eventual urban development of all agricultural property in the Planning Area.

   The first system is adopted as the official circulation plan of the City, while the second is included as an "Engineer's suggestion" for certain long-range circulation planning purposes (e.g., right-of-way dedication and setback requirements).

B. SHORT-RANGE CIRCULATION SYSTEM

2. DEVELOP A SHORT-RANGE (FIVE YEAR) CIRCULATION SYSTEM THAT IS SUPPORTIVE OF AND COORDINATED WITH THE ADOPTED PHASING PROGRAM AND LAND USE POLICIES. The Public Works Department will have to determine the improvements that have the highest priority given the adopted Phasing Program and other current needs relating to safety and public benefit. This will ensure that public Capital Improvement resources are maximized. This short-range circulation system would be reviewed every year, along with the Phasing Program and the Capital Improvements Program.

3. DEVELOP A PLAN LINE STUDY AND AREA OF BENEFIT ANALYSIS IN REGARD TO THE SHORT-RANGE CIRCULATION SYSTEM. At present the City does not have a Plan Line Survey. A Plan Line Survey would outline a specific procedure for the formal establishment of certain street and bikeway plan lines, which will in turn establish specific right-of-way widths, center line grades, and locations. The specific benefits of having a plan line survey are. the elimination of off-set intersections, a continuing of street grades, control of drainage and the ability to better establish cost prior to development. Once the costs have been established, the lands which benefit from these improvements should be identified and an equitable method developed whereby the costs of the improvements would be borne by the lands benefiting from the improvements.

4. CONCENTRATE BEAUTIFICATION FUNDS FOR STREETS IN THE REGIONAL CENTERS AREA, ESPECIALLY IN THE DOWNTOWN COMMUNITY. The inherent purpose of the scenic street program is to create a pleasant environment for the City's citizens as well as for its visitors. By concentrating beautification monies in the Downtown area, the

City would be supporting the Phasing Program and the Land Use policies of concentrating growth and making the Downtown a more attractive place to live and visit.

BIKEWAYS

5. CONTINUE TO UPDATE AND UTILIZE THE "SELECT SYSTEM OF BIKEWAYS" AS A LONG-RANGE TOOL FOR BIKEWAY PLANNING. The Select System of Bikeways designates future Class I, II, and III bikeways within the Planning Area and incorporates Linear Park Network bikeway. routes. This long-range plan was originally developed by CPAC, refined by the Bicycle Technical Advisory Committee (BTAC), and adopted by the City Council on July 21, 1975. It should be periodically reviewed and updated by BTAC, and should be used to evaluate bikeway improvement needs related to new urban development, as well as providing a basis for application for State and Federal bikeway improvements funds.

6. DEVELOP A SHORT-RANGE (FIVE-YEAR) BIKEWAY IMPROVEMENT PLAN, WITH THE ASSISTANCE OF BTAC, WHICH WILL SET PRIORITIES FOR CITY BIKEWAY AND LINEAR PARK IMPROVEMENTS, AND DEFINE AN ATTAINABLE SHORT-RANGE BICYCLE CIRCULATION SYSTEM. This plan should delineate existing bicycle routes, and identify high-priority projects which would complete significant bicycle circulation links and eliminate existing hazards to bicycle travel. The plan should also evaluate the costs and funding feasibility of recommended improvements, considering State and Federal as well as local funding sources.

7. CONTINUE TO CONSIDER BICYCLE CIRCULATION IN THE DESIGN AND DEVELOPMENT OF RELATED PUBLIC CAPITAL IMPROVEMENTS, AS WELL AS FUTURE URBAN DEVELOPMENT. For example, new or widened public streets should incorporate bikeway rights-of-way where designated on the Select System of Bikeways. Master plans for new developments (e.g., residential planned developments, commercial planned developments) should provide safe and direct circulation patterns, both for internal travel and for trips to nearby activity centers, such as schools, parks and shopping facilities.

8. COORDINATE WITH THE COUNTY OF VENTURA, CITY OF OJAI, SOUTHERN PACIFIC RAILROAD, AND OTHER RELATED PUBLIC AND PRIVATE AGENCIES, TO DEVELOP THE "VENTURA/OJAI BIKEWAY." The project would connect the proposed Ventura River Levee bikeway in the Ventura Planning Area to a proposed bike path along an abandoned railroad right-of-way extending to Ojai. The route would serve as an important offstreet recreational bicycle route for local residents, as well as providing a potentially significant tourist attraction, and prospects for attaining outside funding for the project appear good.

9. PREPARE AN AMENDMENT TO THE ZONING ORDINANCE WHICH WOULD REQUIRE NEW OR EXPANDED ACTIVITY CENTERS WHICH ATTRACT A SIGNIFICANT NUMBER OF BICYCLISTS TO PROVIDE BICYCLE STORAGE AREAS IN CONJUNCTION WITH THEIR ON-SITE PARKING REQUIREMENTS. Such a requirement could be implemented under Section 8146 of the City Zoning Ordinance, which sets forth off-street parking requirements for automobiles. The types of establishments for which bicycle parking should be required, as well as specific facility requirements, should be determined with the assistance of BTAC.

10. ENCOURAGE, AND PARTICIPATE IN, THE IMPLEMENTATION OF KEY BIKE ROUTES TO AND ALONG THE COAST, AS FUNDING PERMITS. These include the Emma Wood State Beach to San Buenaventura State Beach route via the Fairgrounds and river levee (to be constructed by State Parks and Recreation), and the Santa Clara River Bridge route. The City's Select System of Bikeways, as it affects the coastal zone, is hereby incorporated as part of the City's Local Coastal Program.

PARKING

11. INITIATE A SPECIAL STUDY OF THE PARKING PROBLEMS IN THE PIERPONT LANES AREA, EVALUATING ALTERNATIVE MEANS OF PROVIDING ADEQUATE PARKING FOR EXISTING AND FUTURE RESIDENTS, AS WELL AS VISITORS TO THE AREA. This study would identify existing and potential parking problems in the Pierpont Lanes area, and evaluate the feasibility of public parking lots, a parking district, and other alternatives to mitigate parking deficiencies.

PUBLIC TRANSIT

12. CONSIDER AVAILABILITY AND ACCESSIBILITY OF PUBLIC TRANSIT IN THE DESIGN AND LOCATION OF FUTURE URBAN DEVELOPMENT:

    a. New or expanded activity centers (e.g., commercial centers, offices, etc.) should be serviceable by public transit wherever possible;

    b. Bus turnouts should be integrated in the design of new or reconstructed street projects, where deemed necessary by the City and SCAT,

    c. Adequate curb returns for high-capacity buses should be constructed where necessary to facilitate bus service;

    d. The City should consider eliminating diagonal parking along Main Street to facilitate bus service along this route.

13. EVALUATE THE FEASIBILITY OF PROVIDING SPECIAL SHUTTLE BUS SERVICE FROM RESIDENTIAL AREAS TO THE BEACH DURING SUMMER MONTHS, TO REDUCE TRAFFIC CONGESTION ON SEAWARD AVENUE AND HARBOR BOULEVARD DURING THIS PEAK TRAFFIC SEASON. Such a project, which could be administered either by the City or SCAT, could provide a recreational service to local residents, as well as reducing traffic congestion and traffic hazards in the beach area during the period of heaviest use of these roads.

14. COORDINATE WITH SCAT FOR THE PROVISION OF ADDITIONAL ROUTES WITHIN THE COASTAL ZONE AS DEMAND AND FUNDING ALLOW. Expansion of bus service may include special, seasonal or weekend routes, and possible shuttle or mini-bus service. Specific routes to be considered include a Downtown to Ventura Harbor route via Harbor Boulevard and weekend service to the Pierpont Community. Other bus service to and from coastal areas (e.g. tour bus service, shuttle buses to the Santa Monica Mountains National Recreation area) shall be encouraged.

PEDESTRIAN MOVEMENT

15. MINIMIZE PEDESTRIAN/BICYCLE CONFLICTS WHEREVER POSSIBLE IN THE DESIGN OF FUTURE STREETS, BIKEWAYS, AND SIDEWALKS. For example, bicycles and pedestrians should not be required to share a given right-of-way (e.g., sidewalk) unless an alternative to a shared right-of-way does not exist.

16. DESIGN OF NEW RESIDENTIAL DEVELOPMENTS SHOULD PROVIDE MAXIMUM OPPORTUNITIES FOR SAFE AND DIRECT PEDESTRIAN MOVEMENT BETWEEN HOMES AND NEARBY ACTIVITY CENTERS, SUCH AS SCHOOLS, SHOPS, AND OTHER LOCAL SERVICES. For example, in new residential planned developments, pedestrian pathways can be designed to minimize pedestrian/automobile conflicts, and provide direct access to adjacent activity centers. Pedestrian pathways should also be incorporated in the design of commercial planned developments and mixed-use developments wherever possible, to encourage walking as an alternative to short automobile trips.

CARPOOLING

17. COOPERATE WITH OTHER LOCAL JURISDICTIONS IN ENCOURAGING CARPOOLING WITHIN VENTURA'S EMPLOYMENT AND HOUSING MARKET AREA. This objective may be achieved through the VCAG Subregional Transportation Plan, which could establish an intercity program of incentives for carpooling, including computer matching of daily commuters.

COASTAL ZONE

POSTING OF SIGNS

18. DIRECTIONAL SIGNS SHALL BE POSTED TO INDICATE THE LOCATION OF SHORELINE PARKS AND MAJOR ACCESSWAYS. SENSITIVE HABITAT AREAS SHALL ALSO BE POSTED TO INDICATE WHERE ACCESS MAY BE LIMITED OR RESTRICTED. In order to protect Sensitive Habitat areas, signing should specify both the type of uses permitted (e.g., nature study) and prohibited (e.g., motorized vehicles). This shall entail development of a Coordinated Sign Program within the Coastal Zone. The City shall coordinate signing with other local and state agencies and pursue all available funding sources.

    The City shall not be required by any outside agency to carry out the above projects or activities unless such requirement is accompanied by adequate funding.

CIRCULATION POLICIES SPECIFIC TO VENTURA HARBOR ARE AS FOLLOWS:

A. In relation to future development of Ventura Harbor, the City shall:

    1. Continue to improve the intersection of Harbor Boulevard and Seaward Avenue, and coordinate with Cal Trans toward the development of design and funding alternatives that would improve circulation of the Highway 101/Seaward Avenue interchange.

    2. Study the possible closing of Beachmont Street to through traffic if traffic conditions from Harbor development reach a point where it adversely impacts adjacent residential areas. Closure of Beachmont Street shall not occur if bus service through the area would be adversely affected, and emergency vehicular and pedestrian/bicycle access would be precluded.

    3. Study the possible effects of Harbor development on Olivas Park Drive. Should widening of this roadway or improvement of the intersection at Harbor Boulevard and Olivas Park Drive become necessary, the Harbor development shall participate in its improvements.

    4. Coordinate with the South Coast Area Transit District (SCAT) to develop additional or expanded bus routes to the Harbor area as demand and funding allow. Expansion of bus service may include special, seasonal or weekend routes, and possible shuttle or mini-bus service.

B. A master plan for Ventura Harbor, as required pursuant to the Land Use Element of the Comprehensive Plan, shall provide for the following.

Street Circulation

1. Facilitate traffic flow through the installation of a traffic signal at the intersection of Schooner Drive and Harbor Boulevard prior to completion of development within Ventura Harbor.

Parking

2. Mitigate the impacts of overcrowding or overuse by the public of any single area by distributing parking areas and facilities throughout the Harbor.

3. Provide adequate parking in all new development projects consistent with City Parking Requirements. Parking for tour buses shall be accommodated near the Channel Islands National Park Headquarters.

4. Provide for a minimum of 100 public parking spaces to be developed for the public beach area. Public beach parking shall be free, unless the City and Port District determine that moderate fees are necessary to recoup maintenance costs. In the event that parking by others interferes with public beach users, the hours of parking shall be limited to prevent longer term parking by non-beach users. Alternative sites for future parking shall be designated along the South Peninsula in order to meet potential parking needs for the public beach area and adjacent uses.

Pedestrian and Bicycle Access

5. Provide shoreline pedestrian access by incorporating shoreline pedestrian walkways into all new shoreline development, including the expansion of existing uses. Where existing buildings are found to interfere with lateral shoreline access, walkways shall be located as adjacent to the water as possible. All walkways are to be linked with adjacent walkways to ensure uninterrupted pedestrian movement. Where accessory structures, such as hoists, fences, and the like, interfere with lateral pedestrian access, access shall be rerouted around such accessory structure or such structures shall be modified or relocated.

6. Provide a bikeway system that incorporates access as part of the street system and, where feasible, along the shoreline.

7. Minimize conflicts between pedestrians, bicyclists and autos by separating pedestrian and bicycle lanes, and providing sidewalks in conjunction with the street system.

Posting of Signs

8. Provide maximum public access and/or protect areas, for reasons of public safety or fragile resources, by conspicuously posting well-designed directional signs in conjunction with new development. Directional signs shall also be posted throughout the Harbor to designate points of interest, public view areas, the public beach area, parking, pedestrian and bicycle accessways. A program for well-designed and coordinated signing shall be developed jointly by the City and the Port District.

Boat Circulation

9. Retain an adequate portion of the water area within Ventura Harbor for the purpose of small boat sailing. Approximately 50% of the water surface area of the Harbor shall be retained as open water channels and sailing areas. An area north of the entrance channel of approximately eight acres shall be retained for small boat sailing.

RESOLUTION NO. 76-207

RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING REVISED LAND USE AND CIRCULATION ELEMENTS AS PART OF THE CITY'S COMPREHENSIVE GENERAL PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has duly reviewed, studied, and considered the following information:

- The Land Use Workbook
- The Community Profiles
- The Findings Booklet
- The Environmental Impact Report on the Land Use and Circulation Element
- The Recommendations of the Planning Division, Comprehensive Plan Advisory Committee, and the Planning Commission
- Alternative Phasing Programs
- Written and oral testimony of interested citizens, developers, and property owners
- Other miscellaneous reports and all other information and data presented during the course of public hearings held in connection with consideration of the proposed revisions to the Land Use and Circulation Elements of the City's adopted Comprehensive General Plan

SECTION 2: The City Council hereby adopts a revised Land Use Element to the City's Comprehensive General Plan, which revised Land Use Element consists of the following items annexed hereto and incorporated herein by this reference:

1) Land Use Policies (Definitions and Intent and Rationale Statements)
2) Future Land Use Map
3) Phasing Policies and Exceptions
4) Phasing Map

SECTION 3: The City Council hereby adopts a revised Circulation Element to the City's Comprehensive General Plan, which revised Circulation Element consists of the following items annexed hereto and incorporated herein by this reference:

1) Circulation Policies
2) Circulation Plan and Long Range Circulation System Map

Passed and adopted this 6th day of December, 1976.

Barbara J. Kern
City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting thereof, held on the 6th day of December, 1976, by the following vote to wit:

AYES: Councilmembers Kosmo, McWherter, Laufer and Ellison.

NOES: Councilmembers Garrett and Kountz.

ABSENT: Councilmembers None.

ABSTAIN: Councilmember Harrington.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 7th day of December , 1976.

Barbara J. Kam
City Clerk

HOUSING ELEMENT

SECTION IV

HOUSING ELEMENT

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HOUSING ELEMENT

INTRODUCTION

The City's Housing Element was adopted by the City Council in 1981. The Element contains an identification of the housing issues and needs of the City as well as a plan for achieving the identified objectives. A Housing workbook was also prepared; however, only the actual identified needs and policies are contained herein. Copies of the Housing Workbook are available through the Department of Community Development.

Introduction

Section VII of the Housing Element describes the major housing issues now facing the City. Background data on existing housing conditions and housing needs are contained in the separate Housing Element Workbook - Sections I-VI.

The issues described in Section VII are organized under five major categories; 1) rental housing needs, 2) ownership housing needs, 3) special housing needs, 4) balancing housing and employment, and 5) other housing needs. In each category are two or more sub-issues. After each sub-issue there is a discussion, one or more policy implications which suggest a general policy direction, and a list of potential programs and actions which could address the issues. Not all of the possible programs and actions are effective in or appropriate for Ventura's particular circumstances. Section VIII, the Housing Plan, lists the adopted housing programs.

A. RENTAL HOUSING

1. Need for Market Rate Rental Units

There is currently a growing shortage of rental units of all types in the City, as well as nationwide. There is a pressing need for additional rental units to provide affordable dwellings for many households and to maintain a choice in housing type and lifestyle. Existing conditions in the rental market compound the difficulties in finding housing for renters. First, rents have escalated dramatically since 1970. In the Southern California region, the average rent has increased close to 50% since 1977. The increase in rent has far exceeded

increases in household income for this period. Second, the low vacancy rate of the total rental stock has created an overly competitive demand from renters for rental units. Third, few if any new rental units are being constructed to ease the crunch. A number of causes may be identified for the lack of new construction. Direct building costs and indirect costs such as construction financing, overhead and sales costs contribute to discouraging investment in rentals. Specifically, capital is harder to obtain due to competition from other sectors of the economy, higher interest rates and lower supply of money. An increase in demand for single-family detached units and condominiums has influenced developers to invest in these types of units. Although the increase in rents over the last four years has been approximately 50% in Southern California, there is a larger incentive for developers to construct owner occupied housing in a market that has increased 150% in that same time period. The concern of developers that rent control may be initiated further discourages construction of rental units. Fourth, the conversion of apartments to condominiums further reduces the supply of rental units.

The shortage of rental units can create an interrelated series of problems. Rents continue to rise. As rental units become more scarce, renters have less choice in rental unit type and location, and the condition of existing units may deteriorate. Also, because of the competition for units, there are increasingly more examples of tenant-landlord conflicts. Restrictions on tenancy, including discrimination against large families, families with children or pets, and students can also result in special difficulties for these types of households.

Policy Implications

A-1 <u>The City should encourage the construction of new rental units by the private sector. In addition, existing</u>

rentals should be conserved and rehabilitated to protect and maintain the rental supply.

The City is currently involved in the Air Quality Management Plan (AQMP) Implementation Program which evaluates proposed residential projects using a point system. This program includes incentives to private developers to construct apartments, through the bonus points given for proposed rental construction. The City's Housing Preservation Program offers low interest loans to rehabilitate Lower cost rental units. As currently operated by the City, these programs can provide funds to rehabilitate up to four unit buildings if the owner resides in one of the units.

2. Need for Low and Moderate Income Rental Units

Although rental units are needed for all income levels, the greatest need is for units affordable to low and moderate income families. As the total supply of rental units decreases, rents increase and higher income renters are forced to take previously affordable units, thus reducing even further the supply of affordable rental units. This transition further impinges on the quality, type and location of units available to low and moderate income households and may create a critical problem of insufficient supply. Low and moderate income households may find it difficult or impossible to find suitable affordable units. According to the Housing Authority, the greatest demand for low and moderate income rental housing is from elderly persons and large households. The housing types most needed in the City are studio apartments and apartments with three or more bedrooms.

Where a shortage of low and moderate income rental units exists, the conditions of the units are more often substandard, and there is a greater tendency for tenant-landlord conflicts. The choice of unit type and location is minimal. The tenant has little ability to overcome these hardships due to the greater disparity between household income and rents. Also low and moderate income households are least able to afford overspending for rent. For the low and moderate income household, a shortage in rental units often results in overcrowded housing.

Constraints on development of rental units affordable to low and moderate income households are compounded by the fact that at this price range, rental units provide little or no profit to the developer. As a result rental units for low and moderate income households are only being constructed in conjunction with subsidy programs. Due to the quantity of paperwork and length of waiting periods (up to six months for HUD land approvals) added to the existing development process, very few subsidized projects are being built.

Policy Implications

A-2-a. <u>The City should continue to work in conjunction with the Housing Authority to assist in the provision and protection of rental units for low and moderate income households through the use of Federal and State funded housing programs</u>.

Assisted housing remains the most viable means to provide affordable housing for low and moderate income households. The Housing Authority and the City are already involved in several Federal and State housing subsidy programs. This commitment

should continue and new programs should be evaluated for possible local applicability. The integration of local programs with Federal and State programs should be considered to make them more available in this area. For instance, the state's new $100 Million housing program involving substantial funds for construction of new rental housing may be an effective program for the City. Also, Conventional Housing funds could be integrated with a City land banking or land write-down program to facilitate land acquisition, therefore expanding the use of Conventional Housing funds. Integration of State and Federal programs such as the City of Los Angeles program which has combined the use of State Coastal Conservancy and Federal Section 8 funds, should also be considered.

A-2-b. The City should continue existing local programs and consider the use of other innovative local programs designed to increase the supply of rentals affordable to low and moderate income residents.

Several local programs could be used to implement such an objective. Incentives for providing rental housing for low and moderate income households are currently included in the City's AQMP Implementation Program. Another possible implementation technique is a density bonus. The City should give technical assistance to developers and individuals to assist them in becoming involved in housing programs.

A-2-c. The City should continue and expand its program to maintain and rehabilitate existing rental housing.

Maintenance of existing affordable rental units is one of the cheapest and most effective ways of

preserving the supply of such units. The City is currently involved in the Housing Preservation Program which assists in the rehabilitation of the existing housing stock. Other possible programs would be code enforcement or occupancy inspection which could be effective in maintaining the condition of below market rate rentals. Such a program should involve periodic inspection of rental complexes, either upon sale of the building or at fixed intervals, to ensure compliance with building codes. Maintaining and rehabilitating existing housing would assist in preserving rental opportunities particularly for low and moderate income households.

3. Condominium and Stock Cooperative Conversions

The term "condominium conversion" refers to the change in the use of a multiple unit apartment structure from rental to ownership units. Condominium conversions are becoming increasingly common throughout this region and the state. According to the State Department of Real Estate, the number of units receiving state approval for such conversion has doubled each year for the past three years. Experience has shown that a variety of problems result from condo conversions.

Conversions increase the costs of housing, since monthly payments for purchased units are substantially higher than for rental units. A study based on 33 pending conversions by the State Department of Housing and Community Development found that the proposed condominium prices would increase monthly cost by at least 53% over preconversion rents in all 33 proposed conversions. Monthly costs would more than double the previous rents in 70% of the proposals. In a majority of cases, (61%) these units

would be selling for more than $100,000 while 32% would sell for $60,000 or less. Higher monthly payments to homeowners can be offset by discounts in the sales price offered by the converter to current renters, and by tax savings. Further, the build-up of equity provides for an investment to be gained later. However, many tenants cannot afford the required down payment to buy a converted unit or do not wish to become homeowners.

Conversion also results in dislocation of tenants. In most cases the tenants in converted apartments do not buy their units. A joint study by the San Francisco Planning Department and local realtors found that 75% of the renters do not buy their units, and as a result the tenants are displaced from their apartments. While the San Francisco study found that most tenants found adequate housing in the same neighborhood, 20% of them required five months or more to do so. All displaced tenants have costs imposed on them for new deposits, moving costs or days lost from work. It should be pointed out that elderly and disabled renters have particular problems resulting from displacement. These problems may be an inability to search for a new apartment, finding an accessible unit and finding other necessary amenities. Perhaps the most serious problem connected with condo conversion is the reduction in the supply of affordable rental units. The type of apartments most likely to be converted are the larger 3- and 4- bedroom units, which further decreases the supply of larger rental units.

Apartments are the lowest cost housing available in the private market. Conversion increases the cost of housing, and depletes an area's supply of lower cost housing. Condominium conversion is sometimes allowed when a certain number of new apartment units are being built at the time

of conversion. However, it is likely that these new apartments will have higher rents than the existing apartment units to be converted due to the higher land, financing, and construction costs prevalent today. Thus, more low cost housing would be provided by keeping the existing stock of apartments rather than by allowing conversion of these existing apartments when new apartments are being built.

Condominium conversion can also create problems for the new owners. Development standards for apartments often differ from those for condominiums. Upgrading to meet some of the standards for condominiums is usually required from the converter as a condition of approval, but if major code problems come up after conversion, it then becomes the homeowners association's responsibility. The units, having undergone normal wear as apartments, will frequently require major maintenance and rehabilitation expenditures a few years after conversion. These expenses, added to the homeowner's association fee, will further decrease the usefulness of the units as low and moderate income housing. In addition to the expense, condo purchasers must devote large amounts of time to group decision making through the homeowners' association, to resolve maintenance and upkeep problems. Due to these problems, the State Department of Real Estate encourages the use of professional management though in many cases this is not financially feasible.

Maintaining an appropriate mix of housing is also an issue to be considered in condominium conversion. The latest City Pending Projects Report (January 1, 1981) shows 985 condominium and single family units proposed while 443 apartment units are proposed to be built. Conversion of apartments to condominiums would further reduce the mix of apartments relative to condominiums.

Alternatively, condo conversion may also provide low and moderate cost ownership housing. In these cases, apartments are usually converted to community apartments or stock cooperatives. The purchaser of a community apartment receives the right of exclusive occupancy of a particular unit, rather than separate ownership of the air space as in a condominium. A stock cooperative purchaser holds the right to exclusive occupancy of a particular unit through ownership of stock or membership in a cooperative corporation. Conversions of apartments to community apartments or stock cooperatives are reviewed in the same manner as condominium conversions, and the same policies would apply. However, where cooperative conversions are providing low and moderate income housing units exclusively, it may be appropriate to exempt such units from any conversion limitations except those necessary for the health and safety of the occupants.

In 1975, the City adopted a condominium conversion ordinance. As part of this ordinance the Planning Commission must find that the proposed condominium conversion project will not adversely affect the supply and availability of rental housing in the City or within a specified area of the City. The ordinance, however, does not include the specific criteria upon which to base such a finding. With the exception of requiring that 120 days' notice be given to tenants prior to vacating the premises, the ordinance contains no other provisions for displaced tenants. Recently adopted State legislation (SB-1823) requires a subdivision map not only for condominiums but also for a stock cooperative conversions creating five or more parcels.

Two other bills have recently been adopted, SB-1645 and SB-1646. SB-1645 requires that findings be made prior to the approval of the subdivision map concerning tenant

notification of the conversion, right to purchase and public hearings. SB-1646 provides additional clarification of SB-1645 on noticing procedures . SB-1838 is "clean-up" legislation for the previous two bills.

The most recent (March 1979) Planning Division survey of apartment vacancies revealed approximately 6,500 apartment units in the City with an overall vacancy rate of 1.6%. The two most recent apartment complexes converted to condominiums (Buenaventura Gardens and Turtle Creek) reduced the City's supply of apartments by 625 units or about 10%. This reduction in the supply of apartments will further restrict the supply of vacant apartments and give added pressure for higher rents in the remaining apartments.

Policy Implications

A-3-a. The City should permit the conversion of apartments to condominiums only when it would not adversely affect the overall supply and availability of rental units, particularly low and moderate income units.

In order to implement this policy, the City should incorporate in its Zoning Ordinance guidelines to effectively deal with the condominium conversion issues. The City's Zoning Ordinance should be amended in accordance with these guidelines and should be revised to bring it into conformance with recently adopted State legislation. There are a number of guidelines which should be considered, including the following methods:

1. To control the rate of condominium conversions:

   Establish methods to determine the potential impact of a project on the supply and cost

of rental housing. A number of cities have ordinances which do not allow conversions when the rental vacancy rate is under 5%. This method should use a specific source for the vacancy rate, such as the Real Estate Research Council's vacancy rate for multiple family units as reported in their quarterly Real Estate and Construction Report.

An alternative approach to the vacancy rate method would be to allow a certain percentage of units to be converted per year. For instance, 1% of all City apartment units would be allowed to convert and all further conversions would prohibited when a certain percentage, e.g. 10%, of the total supply of apartment units are converted.

2. To preserve the supply of low and moderate income housing:

   (a) Require those units which were renting at low and moderate income rents to be sold at low and moderate income prices. This would require a procedure to stop rents from rising quickly before conversion.

   (b) Reserve a certain percentage of units to be sold at low and moderate income prices, usually from 25% to 35% of the total

units to be converted. It may be necessary to establish a mechanism to preserve the price of units so that they continue to be affordable to low and moderate income households and to prevent windfall profits.

(c) Give the local Housing Authority first right of refusal on available units for sale, or allow the Authority to purchase a percentage (25% to 35%) of the total units to be converted at low and moderate income prices.

A-3-b. <u>The City should strive to protect the rights of both tenants and buyers involved in condominium conversion</u>.

The City should include in its condominium conversion guidelines provisions for the protection of tenants and buyers. For example;

1. To assist tenants:

(a) Give existing tenants first right of refusal in purchasing converted units.

(b) Allow the elderly, disabled, and families with children the option to continue renting after conversion, and consider allowing this option for all tenants.

(c) Require that tenants receive adequate notice of the proposed conversion, which would include an explanation of the permit approval process, the tenants' legal rights and any required relocation or purchasing assistance so that tenants understand that eviction is not imminent and that they may forfeit benefits if they move prematurely.

(d) Where a displacement does occur, require that the converter pay tenants' moving expenses and provide information about alternative housing. Also where remodeling and rehabilitation work occurs before conversion, require the converter to provide temporary relocation housing, moving expenses and additional rent if necessary.

(e) Require disapproval of conversion if there is evidence that tenants were coerced to vote for a conversion or to move from their apartments without receiving benefits or assistance.

(f) Consider the use of federal and state housing programs to assist apartment tenants, who otherwise would be displaced by conversion

of their apartment to condominium or stock cooperatives, to purchase their dwelling or a share of the stock cooperative.

2. To protect buyers:

(a) Require a maintenance and operating budget for anticipated costs including a schedule for homeowner's dues as part of the report to purchasers.

(b) Require that full disclosure of the terms of the transaction and restrictions on the sale be made to the buyer (pursuant to Sherman Anti-Trust Act).

B. OWNERSHIP HOUSING

1. Need for Market Rate Owner Occupied Housing

In the United States there is an established tradition of homeownership, and a high value is placed on owning one's own home. In addition, such ownership gives a sense of security and pride to the homeowner. There are also investment benefits and income tax shelter advantages in homeownership. To maintain an important component of the standard of living in the United States, the availability and choice in housing must be maintained.

There is an increasing statewide demand for owner occupied housing. One result of high rents is the difficulty in accumulating sufficient capital to finance the ever

increasing downpayment for home purchase. The increasing costs of homeownership are causing people to spend more on housing than they traditionally would have spent. The shortage of affordable dwellings also restricts the home purchaser's choice of housing locations and types. Furthermore construction costs constrain the development of owner occupied housing. Higher construction costs are partially due to inflation but more importantly they result from the costliness and difficulty in arranging financing. As this shortage persists, an increasing number of home buyers are forced to purchase below market rate ("fixer upper") dwellings.

The costliness of "stick built" (conventional) homes has made factory built housing more attractive to many home buyers. Factory built housing is a type of dwelling which is manufactured offsite according to the State Uniform Building Code, then transported to the home site. In recent years, this kind of dwelling has evolved to become a higher quality and more aesthetically attractive home. Historically, factory built units have not appreciated as rapidly as conventional housing. However, the significantly lower cost of factory built housing relative to "stick built" housing provides home ownership opportunities to low and moderate income families. Factory built units are priced at approximately $32,000 for 1,200 sq. ft. or $51,000 for 1,856 sq. ft. These figures however do not include purchase or rent of the land.

Policy Implications

B-1-a. <u>In order to continue to provide affordability in housing, private lending institutions and other private organizations should be encouraged to develop</u>

low and moderate income households, could be used to expand the housing choice of middle income households. Furthermore, speculation controls applied to new homes would assist in maintaining homes at a more affordable price. Preservation and rehabilitation of existing owner occupied housing is being achieved through the Housing Preservation Program. Other programs such as code enforcement and occupancy inspection may be effective in preserving existing owner occupied housing.

Policy Implications

B-1-b. The City should review pertinent ordinances and policies to facilitate the use of factory built housing and mobile homes as affordable housing units.

The City should evaluate current ordinances and policies to reflect the technical advances of factory built housing. There are some concerns which the City should address in an ordinance revision. These concerns range from common structural problems, (e.g., water leaks due to the lack of roof overhangs) to the quality of the foundation and installation work on the lot. Information on durability, insulation standards, fire safety and inspection of these units will need to be analyzed. Many of the current mobile home park developments are restricted to adults only. The City should consider this restriction to determine if it is to the benefit of those persons in need of housing.

Generally, the constraints on providing factory built housing have been the cost of land and the lack of adequate zoning for this kind of development. Recent State legislation has changed local government's authority over factory built housing. SB 1960 requires cities to permit factory built housing on permanent foundations in single family zones or else in zones designated for factory built housing. This housing would be reviewed for the same development standards as "stick built" housing though architectural restrictions would necessarily be placed only on roofing materials, siding materials and roof overhangs. Another recent bill allows the transportation of wider dwelling units on the freeway therefore accommodating the need for roof overhangs.

2. Need for Low and Moderate Income Owner Occupied Housing

There is an increasing need for low and moderate income owner occupied housing. Housing price trends continue to exceed purchase prices that would be feasible for low and moderate income households. The inflationary factors of construction, land costs, financing, permit processing, and government programs have an even greater impact in lower income housing needs. Speculation has further excluded the lower income household from the owner occupied housing market. As the cost of housing increases, more demand will be generated for housing below the market rate particularly by first and second time buyers who are entering into the home ownership market. In the City affordable ownership housing is becoming increasingly scarce and as a result most low and moderate income households are unable to purchase a home and are forced to remain in the rental market. Unless subsidized,

existing housing that is available for low and moderate income households is usually substandard and often overcrowded. For many households, mobile homes or factory built housing may be one of the few ways to buy an affordable home.

Policy Implications

B-2-a. The City should encourage new construction of affordable owner occupied housing through the continuation and expansion of Federal and State subsidy programs.

Federal and State subsidy programs are the key to helping meet the demand for below market rate owner occupied housing. Due to the difficulties in implementing Federal and State programs, these subsidy programs should be used in conjunction with local programs. For instance, CHFA programs might be combined with a land banking program to provide lower income housing. Cooperative housing programs are becoming more common and practical due to greater federal assistance. The $100 Million housing program includes effective programs for factory built housing.

B-2-b. The City should continue the use of local programs to address the housing needs of low and moderate income owner occupied households.

Incentives can be used to stimulate the private development of low and moderate income ownership housing. An effective incentive program has been incorporated into the City's Air Quality Management Plan (AQMP) Implementation Program. The intent of this incentive program is to provide housing which is affordable to low and moderate income families and is located in close proximity to commercial and

employment centers. Developers receive the maximum incentive when they provide 20% of their project units for low and moderate income households. Several of the recent proposals have included low and moderate income units which have been privately financed.

Other incentive programs may be effective. AB-1151 provides incentives to develop 25% of a project for low and moderate income households. Some of the incentives are density bonuses, reductions in parking or other site development requirements, modifications, and fee reductions. Evaluation of the socio-economic cost of incentives will need to be undertaken to determine which ones would be most effective in the City. In order to prevent windfall profits and to continue the affordability of these units for the intended households, resale controls will be necessary.

Inclusionary zoning programs may be effective although this is a very restrictive method with several problems which would need to be resolved prior to implementation. Some of the issues which would need to be resolved are the size of the project for which it would be effective (e.g., five or more units), percentage of inclusionary units, the effectiveness of in lieu fees as an alternative to providing the units, and resale controls. Effective resale controls will be essential to maintaining continued affordability and to prevent onetime windfall profits.

Several methods can be used to address the homeownership needs of lower income households. The programs that have been mentioned under below market rate rentals can also assist the needs of lower income households

in home ownership. These programs are reduction of permit processing time, development incentives, and mortgage revenue bond financing. Another possibility is the FHA "single review" system, whereby the City's review process is used by the FHA, rather than adding on additional reviews.

B-2-c. It should be a high priority of the City to rehabilitate and conserve below market rate housing.

The City is currently involved in a Housing Preservation Program. These Programs are focused on the rehabilitation of low and moderate income housing. Other programs which may assist in the conservation of housing are code enforcement or occupancy inspection programs. A code enforcement or occupancy inspection program when used judiciously can prevent the deterioration of the existing housing stock. A typical corrective action might involve a few hundred dollars while several thousand dollars may be needed for rehabilitation when maintenance is deferred too long.

C. SPECIAL HOUSING NEEDS

1. Elderly Households

Many of the City's elderly residents are severely affected by the rapid rise in the cost of housing. For example, of the 4,367 households in the City that require housing assistance, 37% (1,633) are elderly households, and of these over half are renters. In addition, 53% of the 849 applicants on the waiting lists for public housing are senior citizens (January 1979). Increases in rent have a greater effect on seniors who have fixed incomes. Some efforts are being made in response to the housing needs

of the elderly. Of the 835 publicly-owned or assisted housing units within the City, 360 are specifically for elderly persons. New housing units for the elderly are to be constructed as a result of the AQMP Implementation Program.

Low income elderly renters are not the only elderly residents who are experiencing problems as a result of the inflationary housing market. Many elderly homeowners living on limited retirement income have a very large equity in their home; however, they have difficulty meeting the day-to-day cost of living. As an alternative, they can sell their homes and use the capital gain for living expenses. This alternative requires affordable replacement housing such as a lower cost condominium, less expensive single family home, an apartment or a mobile home. The high cost of any dwelling (single family detached or condominium), the limited numbers of mobile home park spaces, and the lack of affordable accessible rentals may make it difficult for elderly persons to maintain a home and meet their living expenses.

Policy Implications

C-1. <u>The City should work in conjunction with the Housing Authority to encourage the construction of housing for the elderly</u>.

The City currently has an incentive program for the development of elderly housing in its AQMP Implementation Program. This program provides incentive points for elderly housing and/or subsidized housing programs which may include Federal and State programs oriented to the

elderly. Assisted rehabilitation programs such as the Housing Preservation Program would also aid the elderly in conserving and rehabilitating their homes. The Housing Authority is currently involved in the Conventional Housing Program and Section 8 Program which provides housing for the elderly. Assistance to the elderly can also be provided through the Section 202 Program for private construction of rental units. Another partial solution is the home-sharing concept, whereby elderly homeowners with large homes are matched with renters, usually also elderly. This alternative provides not only financial benefits but also companionship. The City, working in conjunction with the Ventura Senior Coordinating Council, recently received a $43,000 grant to initiate this type of program.

2. Large Households

In the current housing market, large households (five or more persons) have greater difficulty in renting or purchasing than smaller households (four or fewer persons). Approximately 5% of the total owner occupied household needs and 7% of the total renter needs in the City are for large households. Although not a large percentage of the City's housing needs, the low income, large household presents a special problem due to the large disparity between housing costs and household incomes.

Large households with minor children have an even more difficult time finding housing. Very often rental complexes are restricted to adults only. Therefore, there is even a more critical need to provide housing particularly rental units for families with children.

Policy Implication

C-2 The City should emphasize the provision of rental and ownership housing for large households.

The needs of large households particularly those with children should be given a high priority. Development incentives could be established to encourage the development of larger dwellings. Generally, increasing the supply of low and moderate income housing will make housing more affordable to large households. Other methods which could be used are inclusionary zoning or regulation of the number of new units restricted to adults only. Several cities are developing ordinances to prevent discrimination against families with children.

3. Disabled Households

The Housing Authority is in the process of developing housing for disabled persons under its Development Program, a HUD funded effort. All new HUD projects must have 10% of the units available to disabled persons. The elderly and disabled households in need of housing assistance in the City constitute 12% of all owner households and 25% of all renter households. Disabled households have special needs in housing design to facilitate use of the units. Therefore, displacement of disabled occupants or removal of units which are usable by disabled households creates a particularly great hardship.

Policy Implications

C-3 The City in conjunction with the Housing Authority should continue to maintain and increase the supply of housing for the disabled.

Disabled households require special considerations in the design and location of the housing units. Most new housing designed for disabled households is constructed using HUD funds such as the Development Program and Section 202. The Development Program is a subsidy program to assist all low and moderate income households while Section 202 is a program specifically for the elderly and handicapped.

4. Female Heads of Households

Single parent households are also subject to special housing problems. Such households frequently are in lower income range, particularly when the single parent is female, as is usually the case. Households with children typically have more trouble finding adequate affordable housing, and this difficulty is aggravated when it is a single parent household with a lower income.

Policy Implications

C-4 The City should maintain special awareness of the needs of single parent households in the City's housing programs.

There are no housing programs available which are specifically directed toward helping single parent households but all other programs can be encouraged to recognize the special problems of these households. Generally, the provision of low and moderate income housing would assist these households.

5. Farmworkers

Agricultural employment in California has generally been made up of a large number of low-paid hired workers. In 1976, it was estimated that there were over 200,000 year-round and seasonal farmworkers statewide. Migrant farmworkers made up about 13% of this total.

The housing problems farmworkers face are largely due to the low annual incomes that these households earn. In 1980 a survey of year-round farmworker families in Ventura County showed that they have an average annual income of $8,000 while migrant families earned an annual average of $5,000. Housing for this income bracket is usually provided through State or Federal subsidy programs.

Policy Implication

C-5 The City should assist the County where feasible in expanding housing opportunities for farmworkers.

Ventura County and the Cabrillo Improvement Association, a non-profit housing association, are working together to provide housing for farmworkers throughout the county. Currently, the Cabrillo Improvement Association has developed a cooperative housing project for farmworkers in Ventura's Planning Area, using Federal and State funding. This project is cooperatively rehabilitating units and plans to build new units in the future. Ventura County currently has a program using Farmers Home Association (FMHA) funds to provide housing to farmworkers. Both the Ventura County Housing Authority and Cabrillo Improvement Association will be using their expertise to meet the housing needs of farmworkers.

D. BALANCING HOUSING AND EMPLOYMENT OPPORTUNITIES

Employment generated by new commercial and industrial development in the City has been estimated to attract from 750 to 860 new households yearly to the region. The actual number of new households attracted to the City of Ventura would be less than the total employment generated due to (1) new employment opportunities taken by currently unemployed residents, and (2) new households which take newly generated employment but settle outside Ventura. The Ventura AQMP Implementation Program limits the amount of new housing construction to 600 to 700 units yearly. It is important to maintain a balance between housing and employment opportunities in the City. Though it is expected that this balance will continue, monitoring these trends will allow for additional assessment.

Policy Implications

D-1 Periodic monitoring of housing and employment trends should be undertaken in order to determine any significant imbalances in new housing and employment.

This monitoring can be included in the Community Development Report prepared annually by the Planning Division.

E. OTHER HOUSING NEEDS

1. Redlining

Redlining is a practice where lenders either refuse or make it difficult to obtain mortgage credit in certain neighborhoods. Although the reason for redlining in neighborhoods may vary in each City, the neighborhood is considered by the institution to be a bad risk. This decision is based predominantly on the age of the dwelling and/or the transitional nature of the neighborhood, where

socio-economic change is occurring. Redlining usually impacts neighborhoods occupied by low and moderate income households.

Although the practice of redlining has existed for many years, only recently has it come under close scrutiny followed by proposals for legislative action. Currently, there is a small cluster of laws and actions that are specifically directed toward eliminating discrimination in mortgage lending based on geography. The Federal Home Mortgage Disclosure Act of 1975 requires all federally chartered lending institutions to publish data on residential mortgage loans by area. This report is an important data base from which redlining can be assessed.

Policy Implications

E-1 If redlining does occur within the City, the initial method to resolve this issue should be through referral to Federal and State agencies.

2. Demolition Control

Demolition of residential units in the City is occurring almost entirely in two areas: the Pierpont and the Downtown/Avenue. Of the thirteen demolitions that took place in the last twelve months, twelve were in these areas. Eleven of the thirteen were single-family units and two were a duplex. Therefore, it is likely that few rental units were demolished.

Some demolition of low and moderate income rental units in the Downtown/Avenue area is expected in conjunction with the Downtown Redevelopment Project. Under California redevelopment law, such units must be replaced on a one-for-one basis. Further, the Redevelopment Agency is required to set aside 20% of its tax increment funds for

the provision of low and moderate income housing, and to ensure that at least 30% of all new or rehabilitated units developed in the project area are for low and moderate income households. Placement of new low and moderate income housing in non-impacted areas, and "deconcentration" of low and moderate income units, is currently a very high priority in HUD and SCAG funding for housing programs. Since the Downtown/Avenue communities are considered to be "impacted" areas, most of the required replacement housing will be in non-impacted areas in the East End.

Policy Implication

E-2 The City should continue current programs that require replacement housing. Where possible technical assistance on housing preservation and rehabilitation programs should be given to individuals at the time of the application for a demolition permit.

Rehabilitation of housing in dilapidated condition should be encouraged where possible. The Housing Preservation Program could be used in some cases to rehabilitate low and moderate income rental housing. In those cases where low and moderate income rental housing can not reasonably be rehabilitated, displaced tenants should be given priority for public housing assistance programs or other reasonable assistance in seeking comparable housing.

3. Energy Conservation

Heating costs can significantly raise the percentage of household income spent on housing, particularly for low and moderate income families. Energy conservation techniques

both in new home design and retrofits can assist in keeping down home utilities costs.

Policy Implication

E-3 The City should provide information on new energy conservation techniques for existing housing and encourage new low cost units to be built with energy conserving designs.

The City is developing a program to incorporate energy conservation techniques into zoning and building codes. Upon completion of an energy study, a program to implement appropriate techniques and provide information to homeowners would be available. This program would assist homeowners to conserve energy and reduce utility bills.

4. Housing Coordination

Housing programs currently implemented by the City are administered within the Community Development Department and by the Housing Authority. Many cities have designated one employee as the housing coordinator. This coordination can lead to a more efficient and comprehensive housing effort between the City and the Housing Authority and any persons interested in housing.

Policy Implication

E-4 The City should continue to provide for staff support to coordinate the City's housing policies and programs.

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A. INTRODUCTION

This section contains a discussion of the City's role in housing and the recommended Housing Plan, which is a list of housing programs and actions. The housing data base is discussed in Sections 1 through VI, including population and housing characteristics, housing stock, and existing housing programs. Section VII identifies the housing issues, and sets out Policy Implications which provide some general direction for addressing the issues identified.

The Housing Plan includes eleven housing programs. Each program discussion is divided into three sections; Program Description, Quantified Objectives and Implementation. The Program Description includes the purpose of the program, the issue(s) it addresses, and a discussion of how it works. The Quantified Objectives contain numeric goals, in terms of number of units, for those programs where these are applicable. The Implementation Section covers Administrative Responsibility, Funding, and Scheduling.

The programs listed typically describe a specific approach to a specific aspect of the housing problem. One program alone is usually not sufficient to generate additional units. For example, land may be made available for sale through the Housing Incentives Program, be purchased with money borrowed through the Land Banking Program, and be developed by the Housing Authority with Federal Section 8 funds. For these reasons, particular individual housing projects which the City has underway may be discussed or mentioned under more than one program heading. (A complete list of currently proposed housing projects is found on Chart 1).

For the same reasons, the Quantified Objectives given for the programs overlap, and are not additive. Changing circumstances outside the City's control affect the feasibility of some programs, such as Revenue Bonds, so that the numeric goals are subject to change.

B. CITY'S ROLE IN HOUSING

Before setting out a Housing Plan for the City, it is necessary to define the City's role in housing. There are many participants in the housing picture; private for-profit developers, various non-profit groups, and federal, state and local governments. Other factors, such as the condition of the economy, can strongly influence housing production. For example, record high interest rates for construction loans and home mortgages greatly reduced housing starts in 1980, and will probably continue to do so until interest rates fall to more acceptable levels.

The primary housing providers are the private developers who construct market rate residential projects. Some private developers have gone into the field of below-market rate housing, either with assisted housing through HUD or inclusionary units. In addition, many private non-profit groups are working to provide lower cost housing, often for specific groups such as the elderly or farmworkers. It is the City's policy to encourage and assist the private market in producing housing, rather than attempting to rely heavily on government programs. Through its land use regulation powers, the City is able to provide incentives for private developers to construct specific types of housing such as rental units, and thus assist in meeting housing needs. The City's existing incentive program, the AQMP Implementation Program bonus points, has proven to be very effective. Since its inception in the fall of 1979, this program has resulted in seven low and moderate income housing projects totaling 225 units and one 400 unit market rate apartment complex.

Governmental assistance has historically been necessary to provide sufficient housing for lower income households. These programs are usually administered by the Housing Authority. In Ventura, the City will continue to coordinate with the Housing Authority on these programs, and to assist whenever possible. In particular, the City can provide incentives for private developers to make land and/or

units available to the Authority. It should be noted that both State and Federal funding for new housing programs is becoming increasingly limited, as is local staff time for administration of such programs. These constraints must be considered when developing a housing program.

C. HOUSING PLAN

1. HOUSING NEEDS ASSESSMENT PROGRAM

a. Program Description

The Housing Needs Assessment Program would monitor housing information and periodically reassess and update the City's housing needs. This program will provide direction for future housing decisions. The needs assessment will be carried out in conjunction with preparation of the annual Community Development Report. Some of the housing trends to be monitored would include:

1. Rental housing construction and vacancy rate.

2. Ownership housing construction and vacancy rate.

3. Employment generation and housing demand.

4. Current housing needs, by type and number.

All of these variables can help define the City's housing demand. Based on this information, priorities will be developed to direct resources toward the more pressing housing needs. Such information would also be used to revise existing programs such as the AQMP Implementation Program bonus points, and to assess and update the goals of the City's housing rehabilitation programs.

b. Quantified Objectives

Because this program does not relate directly to the provision of housing units, quantified objectives are not needed.

c. Implementation

1. Administrative Responsibility. The Community Development Report is prepared by the Planning Division. The Housing Coordinator will provide assistance with portions of the report dealing with housing issues.

2. Funding. This program will be carried out by existing staff, and will require no additional funding.

3. Schedule. The Community Development Report is prepared annually.

2. HOUSING INCENTIVES PROGRAM

a. Program Description

This program is part of a continuing effort by the City to find and provide incentives for private developers to construct specific desired types of housing. Incentives are most often given for provision of low income housing, but may include other categories of housing; for example, under existing conditions it is desirable to have incentives for all levels of rental housing. The City has already instituted one incentive program through the planning process, and will investigate other possibilities.

The existing incentive program works through the Air Quality Management Plan (AQMP), a County-wide program which, as implemented by the City, limits the number of residential units which can be approved each year. Subsidized low income units are exempted from this limit. Approvals for market rate projects are given based on a point system; a total of 157 points are possible, with up to 20 additional bonus points available for provision of low income units. Points are typically given according to the percentage of the total project units made available to low income households; 20 points for 20% low income units; 10 points for 10% and so forth. Low income bonus points can be earned through:

1. Sale of land to the Housing Authority or to private developers for construction of low income units.

2. Construction of low income units, which are either sold to the Housing Authority or privately managed.

3. Provision of affordable ownership housing.

Since adoption of the program in August, 1979, a total of 225 low income units have been planned through this incentive program.

1.	Housing Authority/Raznick	50 senior units
2.	Housing Authority/Moreland	20 family units
3.	Housing Authority/Hertel	20 family units
4.	Casa de Amigos/Moreland	20 senior units
5.	Shapell/Towbes	60 family units
6.	Moreland Affordable Housing	40 senior units
7.	Brock Affordable Housing	15 family units

Additional incentive programs will be investigated for applicability to the City's needs. AB-1151, which provides incentives to private developers to build 25% of their projects' units for low and moderate income households, will be reviewed and a program prepared adapting it to the City's needs.

b. Quantified Objectives

The number and type of units provided under the existing incentive program is largely dependent on the location and the type of market rate projects proposed by private developers. Some developers are unable to plan assisted units in their projects because their project sites are in already impacted areas, the sites are too small, they are not located conveniently close to employment and commercial areas, or for other reasons. Past experience indicates that it is reasonable to expect that 13-15% of the allocated units will be assisted or affordable housing. Approximately 1277 units are available to be allocated through 1986-87; 15% of this would be 178 units.

c. Implementation

1. Administrative Responsibility. The existing incentive program is administered by the Planning Division. New incentive programs would also be developed by this Division.

2. Funding. No direct funding is required for this program. No additional staff positions would be required to implement it.

3. Schedule. The AQMP Implementation Program is already underway; revisions to this program, to meet changing needs, may occur annually in conjunction with the preparation of the Community Development Report.

3. AFFORDABLE HOUSING PROGRAM

a. Program Description

The intent of this program is to provide an implementation method for developers who wish to earn AQMP program bonus points through provision of low income ownership housing. The program will set out specifically the mechanics of the sale and resale process including:

1. A mechanism for selecting and qualifying eligible households. Qualifications will be tied to income limits, based on a percentage of the prevailing County (or City) median income, adjusted for family size.

2. A mechanism for determining prices of units sold under the program. Prices for initial sale of the units will be determined using median incomes; resale prices will be set using original sale price, plus value of any improvements added by the owner, plus an increase related to the consumer price index.

3. A resale control mechanism to ensure that the units remain in the affordable housing market. This would be done through a deed restriction which would give first right of refusal to the City, Housing Authority, or other suitable non-profit agency. This agency would maintain a list of qualified households who would be able to purchase the available unit. When an owner of one of the affordable units wants to sell the home, he would notify the agency, which would in turn notify prospective purchasers from the list. The price would be determined as described above. If no eligible purchasers can be found, the agency could either purchase the unit itself or, if conditions have changed such that an affordable housing program is no longer needed, allow it to be sold at market rate.

b. Quantified Objectives

At the present time there are approximately 55 units in two projects which will be made available through the program. The number of additional units is dependent on the plans submitted by developers in future AQMP hearings. Units developed under this program would be included in the 178 units listed for the AQMP Incentive Program.

c. Implementation

1. Administrative Responsibility. The program will be jointly administered by the Planning Division and the Housing Authority.

2. Funding. No funding is required. Administration of the program will not require additional staff. Units are made available by private developers.

3. Scheduling. The Affordable Housing Program is scheduled to be completed by the fall of 1981.

4. MORTGAGE REVENUE BOND FINANCING

a. Program Description

Currently, the City, the Housing Authority, or the Redevelopment Agency can issue tax exempt housing revenue bonds to provide lower interest financing for single family (ownership) or multi-family (rental) low income housing. There are State and Federal regulations restricting what each entity can do in issuing such bonds, and these regulations are continually changing. In addition, the feasibility of bond sales is governed to a large extent by market conditions outside the City's control. These factors restrict the usability of bonds. Nevertheless, either singly or in combination with other housing programs such as the Section 8 subsidy programs, tax exempt bonds may be useful in providing housing affordable to lower income households. Perhaps the most valuable contribution of housing revenue bonds is the provision of low interest financing to reduce construction costs. Such reductions in cost help make it economically feasible to build units which can be rented out at the HUD regulated low income rents.

The City is currently investigating the feasibility of a housing revenue bond sale to help finance privately developed Section 8 housing. At this time it seems most desirable for the Redevelopment Agency to issue the bond using the Marks Foran (SB-99) process.

b. Quantified Objectives

At the present time assistance for 60 units of Section 8 family housing being developed by Shapell Government Housing, Inc., is planned through a bond issue. These 60

units are a part of the 225 units provided through the AQMP Incentive Program. Future bond issues will depend on the types of projects proposed through the AQMP incentive program, or independently by public or private developers.

c. Implementation

1. Administrative Responsibility. Revenue bonds probably would be issued through the Redevelopment Agency.

2. Funding. No direct funding is necessary, and no additional staff would be required. Fees for bond counsel will be included in the issue cost.

3. Schedule. It is anticipated that a bond would be issued within the year. Future issues will depend on market conditions and proposed projects.

5. HOUSING REHABILITATION PROGRAM

a. Program Description

One of the most cost-effective ways of providing and maintaining a stock of housing affordable to low and moderate income households is through rehabilitation of existing housing. Rehabilitation programs address both rental and ownership housing for low and moderate income households. Since 1977 the City has operated a Housing Rehabilitation Program which offers a variety of low-interest and/or deferred payment loans to low income households and owners of lower cost rental projects of up to 4 units. The goal of the Housing Rehabilitation Program is to prevent blight and deterioration, and to conserve the maximum number of low income or affordable units, in order to maintain as many units as possible in the low income housing stock. In selecting units within this framework, priority is given to assisting low income households. Loan money is used to repair structural defects, replace worn out and obsolete electrical systems, plumbing, and/or roofs, and correct Building Code violations. Through this program, units which might otherwise have become unusable are maintained as lower cost housing.

b. Quantified Objectives

The number of units which can be rehabilitated is directly dependent on available funding, which fluctuates with circumstances beyond the City's control. To date, approximately 77 units have been or are being rehabilitated. It is anticipated that the program will continue at the existing rate of approximately 15 units per year.

c. Implementation

1. Administrative Responsibility. The City's Housing Rehabilitation Program is currently

administered by a private consultant.

2. Funding. Funding for the program comes from several sources: Community Development Block Grants (CDBG), SCAG Bonus CDBG funds, HUD Section 312, and the State Deferred Loan Program. These funds are leveraged through agreements with the lending institutions which process the loans. The program has several revolving accounts; as money from earlier loans is repaid, it is loaned out again.

3. Schedule. This program has been underway since 1977, and is planned to continue.

6. LAND BANKING

a. Project Description

In 1980 the City initiated a small land banking program, and approximately $160,000 from CDBG and SCAG Bonus CDBG funds was set aside for this purpose. This money, together with funds from the City's General Fund and from the Redevelopment Agency, has been lent to the Housing Authority at no or low interest, to enable the Authority to purchase sites for housing projects. The Authority repays a revolving account when it receives HUD money for its projects, and the money is available to be lent out again. Two projects have been assisted through this program; a sixteen unit project with eight handicapped and eight small family units, and the Housing Authority/Raznick fifty-unit senior project mentioned under the AQMP incentive program. At the present time there are no plans to expand this program to include assistance to private developers of low-cost housing; however, if additional funds become available an expansion would be considered, possibly including land writedowns for assisted housing.

b. Quantified Objectives

This program is implemented on a case-by-case basis as suitable land becomes available and the Housing Authority is able to plan projects. No quantified objectives are possible.

c. Implementation

1. Administrative Responsibility. The land banking program is administered through the Redevelopment Agency.

2. Funding. Money for this program comes primarily from CDBG and SCAG Bonus CDBG funds, which are used on a revolving basis. Money from other sources, such as the City's General Fund and the Redevelopment Agency's fund, is used when needed and as available.

3. Schedule. No schedule is possible as this program is used when suitable land is available.

7. FEDERAL AND STATE HOUSING PROGRAMS

a. Program Description

The major resource in providing housing for lower income households is Federal housing programs. These programs primarily address rental needs of low and very low income households. They are administered by the City's Housing Authority, an autonomous agency. Programs currently underway include:

1. Section 8 Housing Assistance Payment Program. Rent subsidy program - applicant seeks own housing and negotiates with prospective landlord for the dwelling with the Authority approving lease if unit meets Housing Quality Standards and the rent complies with the Fair Market Rent established by HUD.

2. Conventional Housing Program. Housing Authority owned, managed and maintained housing within the City limits of Ventura.

The Housing Authority is currently assisting 404 households in the Section 8 Program and 445 households in the Conventional Housing Program, for a total of 849 assisted households.

The Housing Authority is currently planning seven new construction projects, totaling 178 units, and is planning to acquire 52 existing senior units which are currently being administered by a private developer, Goldrich & Kest. These projects are broken down as follows:

1.	Housing Authority (CAL 35-9)	16 family/handicapped units
2.	Housing Authority (CAL 35-12)	7 family units

3. Housing Authority/
Raznick (CAL 35-13) 50 senior units

4. Housing Authority (CAL 35-14) 29 senior units

5. Housing Authority (CAL 35-15) 36 senior units

6. Housing Authority/Goldrich
Kest (CAL 35-16) 52 senior units
(acquisition)

7. Housing Authority/Moreland/Hertel
(CAL 35-17) 40 family units

Where appropriate, the City may participate directly in some state or federally funded housing programs. Two such programs are the California Homeownership Assistance Program (CHAP), which uses State money to help eligible families purchase mobile homes and lots, and the Senior Homesharing Program, which would use CDBG funds to pay the administrative costs of matching seniors who have rooms to rent with seniors who need housing.

b. Quantified Objectives

The Housing Authority's objectives are set forth in the City's Housing Assistance Plan (HAP), which is attached as Appendix A.

c. Implementation

1. Administrative Responsibility. The Housing Authority administers Federal housing assistance programs in the City. Housing Authority Commissioners are appointed by the City Council and the Authority is an autonomous body. The City's

Housing Coordinator acts as liaison with the Housing Authority in coordinating these programs with other City housing programs.

2. Funding. The Housing Authority receives funds from the Department of Housing and Urban Development for the administration of the Authority's housing programs.

3. Scheduling. These programs are underway.

8. TECHNICAL ASSISTANCE PROGRAM

a. Program Description

The Technical Assistance Program would provide assistance for private non-profit groups and private developers seeking to build low and moderate income housing. Such assistance would include:

- Information on current State and Federal housing programs.
- Information on tax incentives for low and moderate income housing.
- Assistance in filling out applications.
- Assistance with State and Federal agency processing requirements.

b. Quantified Objectives

As the program is dependent on private developers submitting proposals, quantified objectives are not possible.

c. Implementation

1. Administrative Responsibility. This program will be carried out by the Housing Coordinator.
2. Funding. No funding or additional staff positions are required.
3. Schedule. This program is currently underway and will continue.

9. CONDOMINIUM CONVERSION ORDINANCE

a. Program Description

The Condominium Conversion Ordinance would be a revision of the City's existing Zoning Ordinance to regulate the conversion of apartments to condominiums, stock cooperatives, community apartments, or timeshare hotels. It would also cover conversion of rental mobile home parks to condominium or single lot ownership. The new ordinance would include:

1. Specific criteria for when such conversions could occur. The criteria would include, among other things, vacancy rates, impact on the rental market and on other specific segments of the existing rentals units (e.g., children permitted), and impact on affordable housing. If the City finds that vacancy rates are below an established standard (5% is frequently used) or that the conversion would otherwise adversely affect the rental market or a segment thereof, or have an adverse impact on affordable housing opportunities in the City, the conversion would not be permitted.

2. Provisions for tenant protection. The State Subdivision Map Act currently requires the following:

   a. Notice to tenants of intention to convert, 60 days prior to filing of a tentative map.
   b. Notice to tenants 180 days prior to termination of tenancy due to conversion.
   c. Notice to tenants of exclusive right to contract for purchase of unit, on the same or more favorable terms as are initially offered to the public, for not less than 90 days from issuance of the subdivision public report.
   d. For subdivision of a mobile home park for conversion to another use, the subdivider must file a report on the impact of the conversion on the displaced residents.

In addition to this, the following provisions would be added to the ordinance:

a. Require that tenants, particularly those over 60, be allowed to continue to lease their units for one or more years after the conversion.
b. Require the subdivider to pay all or part of the tenant's moving expenses.
c. Require provision of alternate housing at no additional cost to the tenant where substantial remodeling and/or rehabilitation occurs before conversion, and the unit being remodeled or rehabilitated is not habitable.
d. Require disapproval of conversion where there is evidence that tenants have been coerced to publicly approve the conversion, or to forego assistance to which they are entitled.

3. Provisions for buyer protection. The City currently requires subdividers to:

   a. Obtain a building inspection which identifies hazardous conditions and Code deficiencies, and correct such problems prior to sale.
   b. Install smoke detectors in each unit.

   The City could also consider requiring the subdivider to prepare a maintenance and operating budget for anticipated costs, including homeowners fees, to be made available to prospective purchasers.

In order to mitigate impacts on the housing market, the Council may require, on a case by case basis, either of the following:

a. Require some percent of the units to be sold at low or moderate income prices.

b. Require that the Housing Authority be given first right of refusal to purchase a percentage (25% to 35%) of the units at low or moderate imcome prices. Purchase of these units would be subject to availability of HUD funding.

b. Quantified Objectives

Since this program does not relate to the provision of new units, a quantified objective is not possible.

c. Implementation

1. Administrative Responsibility. This program would be carried out by the Planning Division.

2. Funding. The Ordinance revisions would be prepared by existing staff; no additional funding is needed.

3. Schedule. The revisions are scheduled for the 1982-83 fiscal year.

!0. FACTORY BUILT HOUSING ORDINANCE

a. Program Description

This program, based on recent State legislation, consists of revisions to the City's zoning ordinance to allow placement of manufactured or factory built housing on lots zoned for single family development. This program will open up an additional avenue for provision of affordable ownership housing. The revisions, adopted June 1, 1981, specify that such housing can be located in any single family zone provided that the roof and siding materials are of non-reflective material, and roof overhangs are a minimum of 1½ feet. These ordinance revisions will be reviewed in June 1982 to determine if any further steps are necessary.

b. Quantified Objectives

Quantified objectives are not appropriate since implementation of the ordinance is dependent on the private market.

c. Implementation

1. Administrative Responsibility. No administration required.

2. Funding. No funding required.

3. Schedule. No schedule required. This program is underway.

11. RESIDENTIAL ENERGY CONSERVATION

a. Program Description

The City is encouraging energy conservation through two separate approaches. First, the City's AQMP Implementation Program provides incentives for developers to design energy conservation into their projects. The AQMP Program limits the number of residential units which can be approved, and allocates the available units among competing developers based on a 157-point review system. Up to 14 points are available for energy conservation. To date, one project with 146 units has incorporated active and passive solar water and space heating designs, and seven projects totaling 911 units provide active solar water heating.

The second program, adopted as part of the City's overall Energy Conservation Program, would involve revisions to the Building and Zoning Codes to facilitate energy-efficient design in both residential and non-residential construction. For example, setback requirements may be made more flexible to permit efficient building siting for active or passive solar energy.

b. Quantified Objectives

Quantified objectives are not applicable to the program.

c. Implementation

1. Administrative Responsibility. The Housing/Energy Coordinator, the Planning Division, and the Building and Safety Division will have joint responsibility for these efforts.

2. Funding. No direct funding or additional staff positions will be needed.

3. Schedule. The incentive program is underway. The Code Revision Program is scheduled for the spring of 1982.

FIVE YEAR SCHEDULE

The preceding sections set forth the specific housing programs and projects the City has underway or intends to undertake. The purpose of this section is to organize these programs and projects in a five year Housing Program schedule, and to address the specific requirements for Housing Elements spelled out in Section 65583(c) of the Government Code.

1. Identification of adequate sites. A detailed review of available developable land is contained in Section III, Part E of the Housing Element Workbook. As of January, 1981, there were approximately 225 acres of available residential land in the City's Phase I areas, not including hillside land. Of these, 100 acres have been proposed for specific residential projects, and 125 acres are uncommitted. Not included in these figures are additional sites for which residential projects have been approved but not constructed; as of January, 1981, there were approximately 1903 dwelling units in this category. These are broken down into 635 single family units; 427 condominium or townhouse units; 443 apartments; and 398 mobile home spaces.

   All sites in the Phase I areas either have the urban infrastructure in place, or provision has been made for the financing and construction of the needed facilities.

2. Development of adequate low and moderate income housing. The City has 11 housing programs planned or underway, with approximately 313 units proposed in specific projects and an additional 178 anticipated in future projects. See Chart 1 for more detail.

3. Removal of governmental constraints. The Planning Division has undertaken a continuing program to revise and update the Zoning Ordinance. The goals of this effort are to streamline the development process, clarify various sections of the Ordinance Code, and resolve inconsistencies within the Code and between the Code and other regulations, programs and policies.

Completion of these revisions will mean a simpler, faster process for development projects.

4. Conserve and improve condition of existing affordable housing stock. The City's existing Housing Rehabilitation Program addresses this issue.

5. Promote fair housing. Under Council Resolution No. 7598, all City housing programs are administered according to fair housing principles. The AQMP incentive program is particularly effective in this regard because it offers low income housing in the newer, developing areas of the City, thus enabling minorities to obtain affordable housing outside the older neighborhoods where such groups are more concentrated.

CHART 1

Program/Project Title	Type of Units	Number of Units	Schedule
1. Housing Needs Assessment	All types	n/a	Ongoing
2. Housing Incentives Program	All types	n/a	Ongoing
a. Housing Authority/Raznick	Low income, senior	50	May 1982
b. Housing Authority/Moreland	Low income, family	20	Pending HUD Approval
c. Housing Authority/Hertel	Low income, family	20	Pending HUD Approval
d. Casa de Amigos/Moreland	Low income, senior	20	1983-84
e. Shapell/Towbes	Low income, family	60	1983
f. Moreland Affordable Housing	Low income, senior	40	1983-84
g. Brock Affordable Housing	Low income, family	15	1982-83
3. Affordable Housing	Ownership	n/a	Fall 1981
4. Revenue Bonds	Low and Moderate Income, Rental and Ownership	n/a	Fall 1981
5. Housing Rehabilitation	Low and Moderate Income, Rental and Ownership	n/a	Ongoing
6. Land Banking	Low income rental	n/a	Ongoing
7. Federal and State Housing Programs	Low income rental	n/a	Ongoing
a. Housing Authority/CAL 35-9	Family/Handicapped	16	December 1981
b. Housing Authority/CAL 35-12	Family	7	Pending location of suitable site
c. Housing Authority/CAL 35-14	Senior	29	Pending location of suitable site
d. Housing Authority/CAL 35-15	Senior	36	Pending location of suitable site
e. Housing Authority/CAL 35-16	Senior (Acquisition only)	52	Pending HUD approval
8. Technical Assistance	All types	n/a	Ongoing
9. Condominium Conversion	Low and Moderate Income Rental, Moderate Income Ownership	n/a	Spring 1982
10. Factory Built Housing	Moderate Income Ownership	n/a	Ongoing
11. Energy Conservation	All Types	n/a	Ongoing

Form Approved
OMB No. 63-R1471

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

HOUSING ASSISTANCE PLAN

TABLE III - THREE YEAR HOUSING PROGRAM
THREE YEAR GOAL

1. NAME OF APPLICANT: CITY OF SAN BUENAVENTURA

2. APPLICATION/GRANT NUMBER: B 7 9 — M C — 0 6 — 0 5 3 6

3. PERIOD OF APPLICABILITY
FROM 7/1/79 TO 7/1/82

KEY PUNCH CODE E

4. [X] ORIGINAL
[ ] REVISION, DATE
[ ] AMENDMENT, DATE

	TYPES AND SOURCES OF HOUSING ASSISTANCE	NUMBER OF LOWER-INCOME HOUSEHOLDS TO BE ASSISTED			
		TOTAL	ELDERLY (1-2 persons) AND HANDICAPPED 1/	SMALL FAMILY (4 or less persons)	LARGE FAMILY (5 or more persons)
	(a)	(b)	(c)	(d)	(e)
1	A. Total Goals for Housing Assistance for Homeowners (sum of lines 2 and 5)	111	45	46	20
2	1. New Construction Assistance for Homeowners (sum of 3 and 4)	0	0	0	0
3	HUD Assisted Programs	0	0	0	0
4	Other*	0	0	0	0
5	2. Rehabilitation Assistance for Homeowners (sum of lines 6, 7 and 8)	111	45	46	20
6	Community Development Block Grants	90	38	39	13
7	HUD Assisted Programs	0	0	0	0
8	Other* Section 312	21	7	7	7
9	B. Total Goals for Housing Assistance for Homeowners by Percentage of Household Type	100%	41 %	41 %	18
10	C. Total Goals for Housing Assistance for Renters (sum of lines 11, 14, 17 + 23)	408	143	210	55
11	1. Assistance for Prospective Homeowners (sum of lines 12 + 13)	10	0	4	6
12	HUD Assisted Programs	10	0	4	6
13	Other* Section 235	0	0	0	0
14	2. New Rental Units (sum of lines 15 + 16)	277	100	149	28
15	HUD Assisted Programs TPH Sec. 202	277	100	149	28
16	Other*				
17	3. Rehabilitation of Rental Units (sum of lines 18, 19 + 22)	36	16	10	10
18	Community Development Block Grants	-	-	-	-
19	HUD Assisted Programs (sum of lines 20 + 21)	12	7	5	0
20	Substantial Rehabilitation	-	-	-	-
21	Section 8 Existing with Moderate Rehabilitation	12	7	5	0
22	Other* Section 312	24	9	5	10
23	4. Existing Rental Units (sum of lines 24 + 27)	85	27	47	11
24	HUD Assisted Programs (sum of lines 25 + 26) Sec. 8	85	27	47	11
25	With Repair	11	3	6	2
26	Without Repair	74	24	41	9
27	Other*	0	0	0	0
28	D. Total Goals for Housing Assistance for Renters by Percentage of Household Type	100%	35 %	52 %	13 %
29	E. Total Goals for HUD Assisted Rental Units by Percentage of Household Type	100%	36 %	54 %	110 %

NARRATIVE *(Attach additional sheets if necessary and identify with items above)*

1/ 1. Footnote units to be provided specifically for the handicapped.
* 2. Describe the programs listed under this category.
3. Describe those actions necessary to facilitate the accomplishment of the goals.

CHECK IF APPLICANT WISHES TO REVIEW ALL STATE HFDA HOUSING PROPOSALS: [ ]

Previous Edition is Obsolete

HUD-7093 (10-78)

RESOLUTION NO. 81-133

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING THE REVISED HOUSING ELEMENT OF THE COMPREHENSIVE PLAN.

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has duly reviewed, studied, and considered the following information:

- The Housing Element Workbook
- The Housing Element Issues and Recommended Housing Plan
- Written and oral testimony of interested citizens, developers, organizations, and other governmental agencies
- Other miscellaneous reports and all other information and data presented during the course of public hearings, held in connection with consideration of the revised Housing Element

SECTION 2: The City Council hereby adopts the revised Housing Element of the City's Comprehensive Plan, consisting of the following items annexed hereto and incorporated herein by this reference:

1) Housing Element Workbook

2) Housing Element Issues and Recommended Housing Plan

Passed and adopted this 14th day of September, 1981

City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 14th day of September , 1981, by the following vote:

AYES: Councilmembers Harrington, Orrock, Chaudier, Ellison, Monahan and Henson.

NOES: None.

ABSENT: Councilman McWherter.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 15th day of September , 1981.

Barbara J. Kam

City Clerk

NOISE ELEMENT

SECTION V

NOISE ELEMENT

TABLE OF CONTENTS

NOISE ELEMENT

INTRODUCTION

The Noise Element was prepared by the County of Ventura as a means of providing the cities within its jurisdiction with policies for controlling undesirable noise levels. It was feared that these noise levels may lower the quality of life and detract from the enjoyment of urban living. The document contained herein was adopted in its entirety by the City Council in 1975.

ACKNOWLEDGMENTS

SAN BUENAVENTURA CITY COUNCIL

David D. Eaton	Mayor
Ira E. Laufer	
Eugene C. Kountz	
Joseph Garrett	
John A. McWherter	
Dick Bozung	
Patricia Ellison	

SAN BUENAVENTURA PLANNING COMMISSION

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John Sewell	Division Chief*
Todd Collart	Project Manager
Jon Holan	Co-author

* Resigned

Special appreciation is extended to Ralph Hinds and Terry Gilday for their technical assistance; the Secretarial and Graphics sections for the time and effort they have spent in the preparation of this element; and especially to Rick King for the cover design. Thanks should also be extended to the Ventura County Association of Governments' General Plan Elements Policy Advisory Committee who provided valuable input to the element, and the numerous departments and individuals within the County and the cities whose expertise made the element possible.

COMMENTS CONCERNING THE LAW

On June 30, 1972, Government Code Section 65302 was amended to require the inclusion of a noise element in the General Plan of each city and county. September 20, 1974, was established as the deadline for adoption of the element, however, provisions for a time extension were made. The law requiring the Noise Element reads as follows:

> *"A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include but are not limited to the following:*
>
> *1) Highways and freeways*
> *2) Ground rapid transit systems*
> *3) Ground facilities associated with all airports operating under a permit from the State Department of Aeronautics*
>
> *These noise contours may be expressed in any standard acoustical scale which includes both the magnitude of noise and frequency of its occurrence. The recommended scale is sound level A, as measured with A-weighting network of a standard sound level meter, with corrections added for the time duration per event and the total number of events per 24-hour period.*
>
> *Noise contours shall be shown in minimum increments of five decibels and shall be continued down to 65 db(A). For regions involving hospitals, rest homes, long-term medical or mental care, or outdoor recreational areas, the contours shall be continued down to 45 db(A).*
>
> *Conclusions regarding appropriate site or route selection alternatives or noise impact upon compatible land uses shall be included in the general plan.*
>
> *The state, local, or private agency responsible for the construction or maintenance of such transportation facilities shall provide to the local agency producing the general plan, a statement of the present and projected noise levels of the facility, and any information that was used in the development of such levels."*
> *(Source: Government Code 65302(g))*

For a variety of reasons, the wording of the law has hindered the development of a meaningful Noise Element. First, the law focuses exclusively on transportation related noise and does not consider industrial or other point sources which also contribute to the overall problem. Second, since a standardized noise measurement or evaluation scheme was not mandated, all noise data received from mandated source, even where inconsistent, was included in the Element.

Third, the law requires contours down to 45dB (A) if the source impacts uses such as medical facilities or recreation areas. However, this contour level would, in many cases, be lower than the background noise of the area impacted. Furthermore, contours representing the 45dB(A) noise level are so distant from the noise sources that it is difficult to determine their exact location.

Fourth, except for hearing loss, definite conclusions have not been reached regarding noise levels which may cause adverse human and natural impacts. This, coupled with the problem of inadequate noise data, precludes the assessment of noise impacts upon compatible land uses (as required in the law), except in a most generalized fashion.

INTENT OF THE NOISE ELEMENT

The Noise Element:

(1) Introduces the tehnical aspects of noise,
(2) Provides a general overview of the present noise situation,
(3) Suggests strategies for reducing community noise,
(4) Provides a county-wide starting point for future programs, and
(5) Meets the requirements of State law.

ORGANIZATION OF THE ELEMENT

The Noise Element provides each jurisdiction with a perspective of their unique noise conditions, as well as an overview of the countywide situation. Local noise problems are delineated in Chapter VI, "Local Inventory,"

and countywide issues are contained in Chapter V, "General Inventory of Noise," although existing noise data is not sufficient for land use decisions but only as a guide for more detailed studies. Consequently, each contracting entity will receive a discussion or noise conditions within its jurisdiction, as well as an overview of regional noise conditions.

The Element is devised so that staff in each locality can use it to evaluate noise conditions within their jurisdiction. After a careful review of the "Findings" in Chapter VII, a local entity may decide on appropriate responses, possibly based upon the alternatives found in Chapter VIII ,"Options." Such responses range from taking no action to enacting new noise ordinances to control point sources. Each entity is offered a range of options which can be translated by local staffs into final recommendations and submitted to their commissions and councils. Thus, county staff will not be making recommendations but will offer, instead, a range of responses for each locality's consideration. The locality, aware of its unique situation, interests, and concerns, can then determine the appropriate response.

To assist the various staffs in the development of appropriate responses or recommendations, the Element includes Chapter IX entitled"Recommendations on Options." This chapter, comprised of the recommendations from various authorities and advisory groups, is intended to guide decision makers in the adoption of appropriate responses.

To summarize, the Element is designed to: Provide entities within the county a regional and local perspective of the issue; offer alternative solutions to the problems identified; and lend guidance in selecting the appropriate alternatives.

THE URBAN NOISE PROBLEM

Noise is commonly defined as unwanted, annoying sound. It is a pollutant which lowers the quality of life and detracts from the enjoyment of urban living. At sufficient levels, noise can cause annoyance, speech interference, sleep disturbance, psychological distress, physiological stress and hearing loss. Such noise levels may already exist in some areas of Ventura County.

The most immediate noise problems occur in the buildings people occupy - their homes and places of work. Such noise sources will be addressed only briefly in this element because they are outside the purview of a planning study. Apart from indoor noise sources, motor vehicles, as a group, are the most pervasive contributors to urban noise. Aircraft, however, which are not the most pervasive noise generators, produce the most aggravated community annoyance reactions. Other significant noise sources include factories, railroads, powered gardening equipment, stereo sound amplifiers, musical instruments, power tools and air conditioners.

Most of the noise problems we encounter could be mitigated through the application of simple preventive measures, including:

1) reduction of noise at the source,
2) modification of the path of the noise with the aid of baffles and screens,
3) reduction of noise at the receiver with various types of insulation.

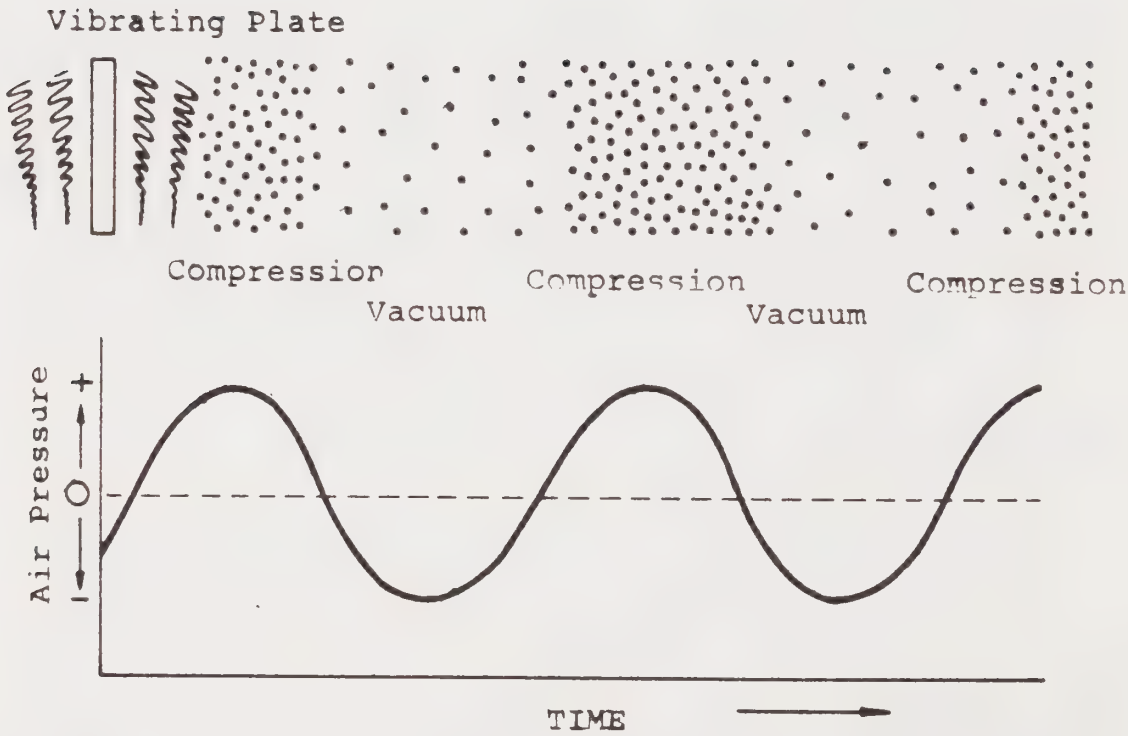
One very effective mean of controlling noise is to control the growth and distribution of population through wise land use planning practices. In this way, residential areas can be separated from freeways, airports and noisy businesses; and the mushrooming numbers of noise sources can be stemmed.

THE GENERATION & TRANSMISSION OF SOUND

The generation and transmission of sound is easy to understand; see illustration 2.1. Consider a plate suspended in air bounded on both sides by layers of air. If we strike the plate it vibrates, moving rapidly back and forth. As it moves, it compresses the air in the direction of its motion and when it reverses direction, it leaves a partial vacuum or rarefaction of the air. These alternate

Illustration 2.1

Generation and Transmission of Sound Waves



Source: ORANGE COUNTY HEALTH DEPARTMENT, 1973, Page 3.

compressions and rarefactions cause small fluctuations in atmospheric pressure which are repeated in subsequent layers of air radiating outward in all directions from the plate. When the pressure variations strike the ear drum, it vibrates in response to the changes in pressure. The disturbance is carried through the inner ear to the brain where it is interpreted as sound.

In the above example, air was the "medium" through which sound was transmitted. Sound, however, may also be transmitted through liquids such as the clanking of a diving board heard under water in a swimming pool. Solids also transmit sound as evidenced by built-in dishwashers in apartment buildings. This example points out that solids transmit vibrations that are felt as well as heard. In general, sound travels faster and with less excess attenuation in solids than in air.

CHARACTERISTICS OF SOUND

LOUDNESS

As discussed above, the sound we hear is the result of fluctuations in air pressure or sound pressure levels (S.P.L.). The loudness of a given sound is a function of its air pressure: the greater the pressure, the louder the sound. Referring to illustration 2.1, loudness corresponds to the height of the waves or the density of the dots, and is measured in microbars which is the equivalent of one one-millionth of an atmosphere. Loudness can also be measured in terms of sound power (PWL, power watt level).

PITCH

The pitch or frequency of a sound is determined by the number of air pressure fluctuations that occur in a second. In Illustration 2.1, pitch is illustrated by the number of wave crests or dot groupings that appear over a given distance (time) on the diagrams. Pitch or frequency is measured in cycles per second (cps) or Hertz (Hz).

ATTENUATION

The diminishing of sound levels or loudness as a sound travels away from its source. Sound level diminishes by

half with the doubling of its distance from the source. In other words, the intensity of a sound diminishes exponentially.

PERCEPTION OF SOUND

As stated earlier, we perceive sound because of fluctuations in air pressure which set up vibrations in our ear drums which in turn are interpreted as sound by our brain. These fluctuations are so small that they are not measured in atmospheres (14.7 pounds per square inch) but in microbars which are roughly a millionth of an atmosphere.

Even at these infinitesimal pressures, the human ear can detect pressure levels as small as .0002 microbars. People can also tolerate sound pressures of approximately 200 microbars before experiencing discomfort - a one million-fold increase over the minimum pressures capable of being perceived. The human ear is, therefore, very sensitive to a broad range of sound levels, while we can perceive frequencies from 20 to 20,000 cps. Despite this sensitivity, it takes a 5-decibel increase (or a near doubling) in sound intensity before we can perceive an increase in loudness and a 10-decibel increase to perceive a doubling of the sound level.

MEASUREMENT OF SOUND

Thus far, this chapter has discussed the generation and transmission of sound, the characteristics of sound and lastly our perception of sound. This section will discuss the measurement of sound and how sound measurements attempt to relate theoretical sound with our perceptions of sound.

One way of measuring sound is to measure its sound pressure in microbars. Another way is to measure sound power, or the watts per square meter produced by a given sound pressure. In both cases, the normal ranges to be measured are tremendous: .0002 to 2000 microbars of sound pressure, and .00000000001 to 100 watts/m^2 of sound power. It is evident that sound pressure and power are not equal units, but that power increases much faster than does sound pressure.

To conveniently express these great ranges, the decibel (db) was devised. Simply put, the decibel is a sound level unit of a logarithmic scale. The logarithmic scale compresses the huge ranges mentioned above to a much smaller

Illustration 2.2

Sound Power Watts/m²	Sound Pressure Microbars	Sound Level dBA	NOISE SOURCE		
1×10^{2}	2×10^{4}	140			
1×10	2×10^{3}	130			
1	2×10^{2}	120	OXYGEN TORCH SNOWMOBILE		ROCK-n-ROLL BAND
1×10		110	RIVETER TEXTILE LOOM	JET TAKE OFF at 1000'	
1×10^{-2}	2×10^{1}	100	ELECTRIC FURNACE POWER MOWER	JET FLYOVER (1000') ROCK DRILL* MOTORCYCLE*	
1×10^{-3}		90		SNOWMOBILE* POWER MOWER*	PRINTING PRESS FOOD BLENDER
1×10^{-4}	2	80	LATHE	DIESEL TRUCK*	GARBAGE DISPOSAL
1×10^{-5}		70		PASSENGER CAR*	CLOTHES WASHER DISHWASHER VACUUM
1×10^{-6}	2×10^{-1}	60		AIR CONDITIONER*	CONVERSATION LARGE STORE
1×10^{-7}		50			
1×10^{-8}	2×10^{-2}	40			
1×10^{-9}		30		* at 50'	WHISPER
1×10^{-10}	2×10^{-3}	20			
1×10^{-11}		10			
1×10^{-12}	2×10^{-4}	0			

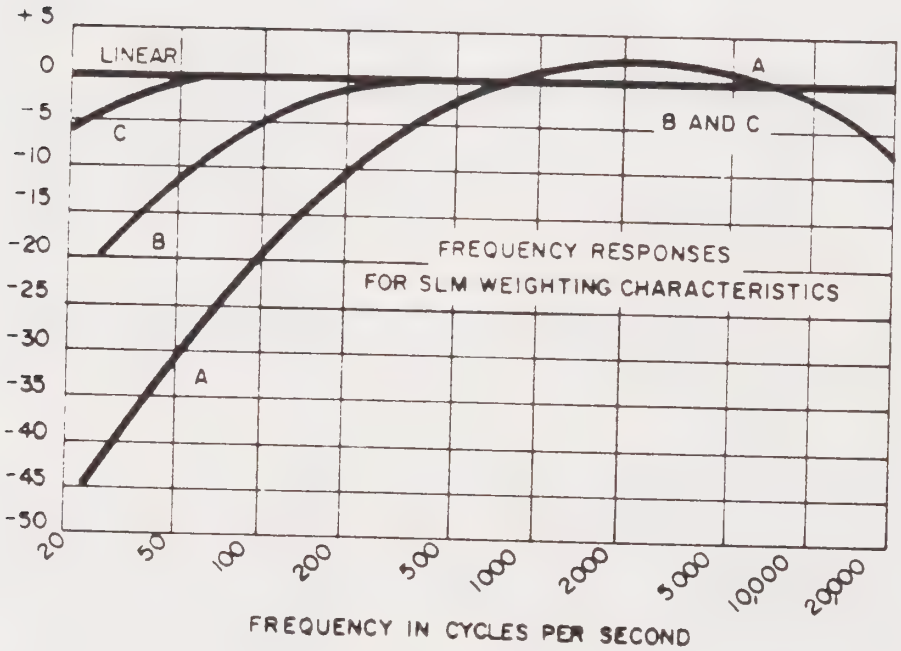
SOURCES: DEPARTMENT OF PUBLIC HEALTH, 1970, Page 22.
Adopted from TAYLOR, 1970, Page 56.

range. As portrayed on illustration 2.2, the decibel range of 0 to 140 corresponds directly to sound pressure and power thereby becoming the universal measure of both.

The decibel (db) represents a theoretical noise level measured on a noise meter which, because we have selective perception, may not accurately depict what we hear. To correct this situation, various weighting scales are applied to decibel readings so that they will more closely approximate what we actually hear. The three most common weighting scales are depicted on illustration 2.3.

Illustration 2.3

Frequency-Response Characteristics
For Sound Level Meters



Source: ORANGE COUNTY HEALTH DEPARTMENT, 1973, Page 7.

The "A" scale, which is the most commonly used scale in measuring community noise, effectively reduces the decibel levels of sounds with frequencies above and below our most sensitive range (1000 cps to 8,000 cps) and in so doing provides dbA readings which better approximate the level of sound we actually hear. Referring to illustration 2.3 for example, a 200 cps sound of 60 db would be lowered 10db to

50 dbA while a 2,000 cps sound of 60 db would be raised 3 db to 63 dbA. The dbA readings of 50 and 63 more accurately reflect our perception of the relative loudness of the two sound levels than do the initial 60 db readings.

To summarize, a sound of a given frequency can have a theoretical intensity expressed in sound pressure, sound power, or their corresponding decibel level. These measures relate to theoretical intensity and not necessarily to what we hear. We therefore bias noise level readings (in decibels) with various weighting scales, the most commonly used are being the "A" scale. Please refer to illustration 2.2 for corresponding sound power, sound pressure and "A" weighted sound levels for various noise sources.

FACTORS WHICH AFFECT NOISE TRANSMISSION & MEASUREMENT

It was pointed out earlier how our perception of sound effects the measurement of sound. This section will discuss some of the physical factors that effect the transmission of sound and thereby also effect its measurement.

The medium through which noise travels determines in large part its speed of travel and its degree of attenuation. Generally, noise travels faster and with less excess attenuation in solids than in other mediums such as air or water. Distance has a direct effect on attenuation. Assuming an unobstructed path, noise pressure and power levels dissipate an equivalent of six decibels for every doubling of distance.

Noise can be reflected by barriers such as buildings, walls, vegetation, and topography. The positioning of barriers may, however, create reverberations or a focusing of sound pressure waves which may effectively raise the sound level. When taking sound measurements, therefore, caution must be taken so that instruments are not set up in such areas and record exaggerated readings.

Noise may pass through barriers which do not have enough mass or which have minute openings. For example, acoustical tile reduces reverberation within a room, but it does not have enough mass to prevent noise from passing between rooms.

Weather also effects noise transmission and measurement. Relative humidity and temperature effect noise propagation and their levels should be noted on any noise measurements done. Rain drowns out noise and as a result, measurements should not be taken during rainy periods. Noise is masked

by wind and when traveling against it, the noise is attenuated. Therefore, measurements should not be made in winds above 5 mph without a windscreen and never above 20 mph.

WORKING WITH SOUND MEASUREMENTS

Because sound levels are commonly measured in decibels which are based on a logarithmic, not arithmetic, scale, caution must be exercised when working with sound level figures. For example, two 110 dbA sounds together do not produce a "total" sound of 220 dbA, but rather 113 dbA. This can be shown on Illustration 2.2 by examining the sum of power equivalent of 110 dbA. Its doubling from .1 watts/m^2 to .2 watts/m^2 raises the sound's decibel level from 110 dbA to 113 dbA, not 220 dbA. It would take a one hundred and ten-fold increase in sound power to raise the original sound level of 110 dbA to 220 dbA. Looking at the relationship between sound pressure and sound levels (dbA) on Illustration 2.2 reveals that a ten-fold increase in sound pressure results in 20 dbA increase in sound level and <u>not</u> a 10 dbA increase as was the case with sound power.

When dealing with sound attenuation, every doubling of the distance from the source results in a 6 db reduction in sound pressure. For example, moving from 10 feet to 20 feet from a source would reduce a 95 decibels sound level to 89 decibels.

The cardinal rule to remember when dealing with decibels is that they should never be simply added or divided: doubling sound levels or combining two different sound levels is not represented by the doubling of decibel levels (110 db + 110 db $\neq$ 220 db, 60 db + 63 db $\neq$ 123 db). Halving sound levels is not represented by a halving of the original decibel level (110 db divided by 2 $\neq$ 55 db).

TYPES OF SOUND

Sounds encountered in community noise may be differentiated on the basis of the range of the frequencies that make up the sound, the number of occurrences of the sound or its periodicity, and the onset of the sound (See glossary).

The range of the frequencies of a sound can vary from only one frequency (known as "pure tone") to a sound containing a wide range of frequencies, known as "broad band"

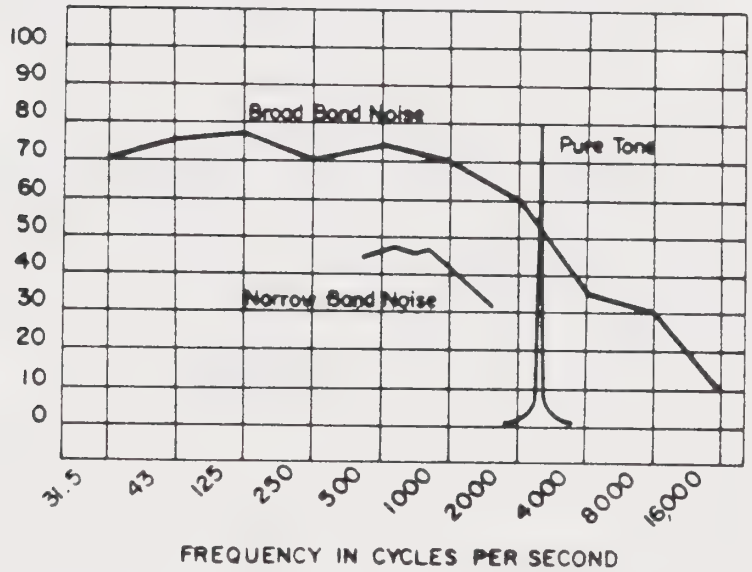
or "wide band." The periodicity of a sound may be continuous or steady state, repeated at a certain rate or "intermittent," or may occur only once. Finally, the "onset" or beginning of a sound may be gradual or sudden and sharp. Based on these categories, five types of community sounds may be defined: (Source: NATIONAL BUREAU OF STANDARDS (a), 1971, pg. 10).

1. Steady Wide Bank Sound - This is a continuous sound composed of a large range of frequencies. The onset may either be slow or sudden. Air moving through air condition ducts is an example of steady wide band sound.

2. Steady Narrow Band Sound - This sound is the same as steady wide band sound except that it is a continuous noise composed of a small range of frequencies, or a single frequency or "pure tone." A circular saw cutting through a piece of wood is an example of steady narrow sound. Illustration 2.4 portrays the difference between steady narrow and wide band sound.

Illustration 2.4

Three Types of Noise



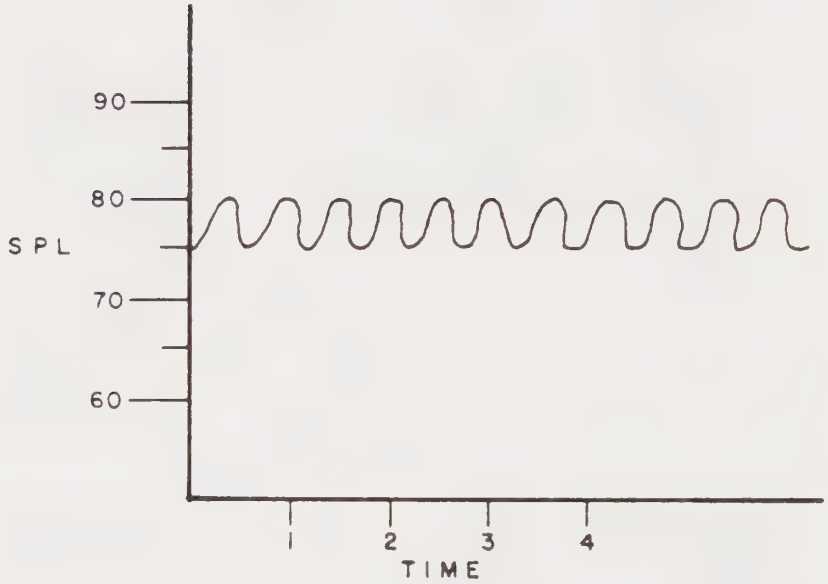
Source: Adapted from CITY OF INGLEWOOD, 1972, pg. 3

3. Intermittent Sound - Intermittent sounds may have wide or narrow frequency ranges or be of a "pure tone," but unlike the first two types of sounds, they occur several times during a given period. The sound may occur at random

or at a constant rate but not continuously. The onset of intermittent sound is gradual rather than sudden. The fly-overs of aircraft from a busy airport are examples of intermittent sound. Illustration 2.5 illustrates intermittent sound.

Illustration 2.5

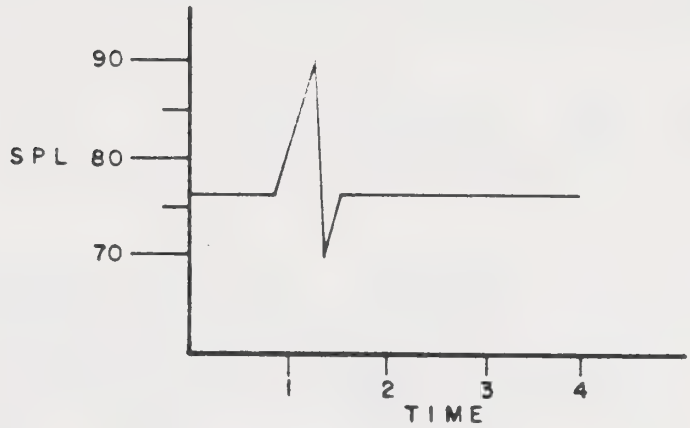
Intermittent Noise



4. Impulsive Sounds - These are differentiated from intermittent sounds by their sudden onset and very short duration. Generally, an impulsive sound is defined as lasting for one second or less and beginning with a sudden increase in sound pressure. A gunshot or a car backfiring is an example of this type of sound. Illustration 2.6 illustrates an impulsive sound.

Illustration 2.6

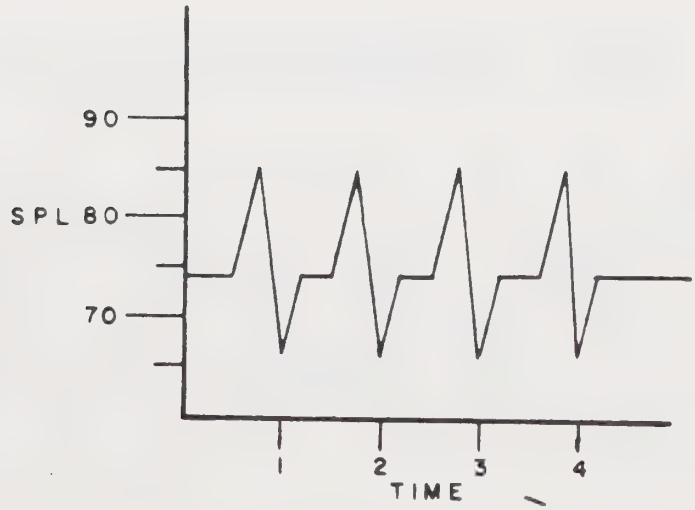
Impulsive Noise



5. Repeated Impulsive Sound - This is a sound which has the characteristics of both impulsive and intermittent sound. It has the onset characteristics of an impulsive sound (sudden rise in air pressure) and the repetitiveness of an intermittent sound. Riveting at construction sites is an example of a repeated impulsive sound. Illustration 2.7 graphically represents a repeated impulsive sound.

Illustration 2.7

Repeated Impulsive Noise



The first chapter attempted to provide a general introduction to noise by explaining some of its fundamental characteristics, how we perceive it, and the difficulties in measuring it in a meaningful way. This chapter will deal with the negative effects of noise.

WHO & WHAT AFFECTED

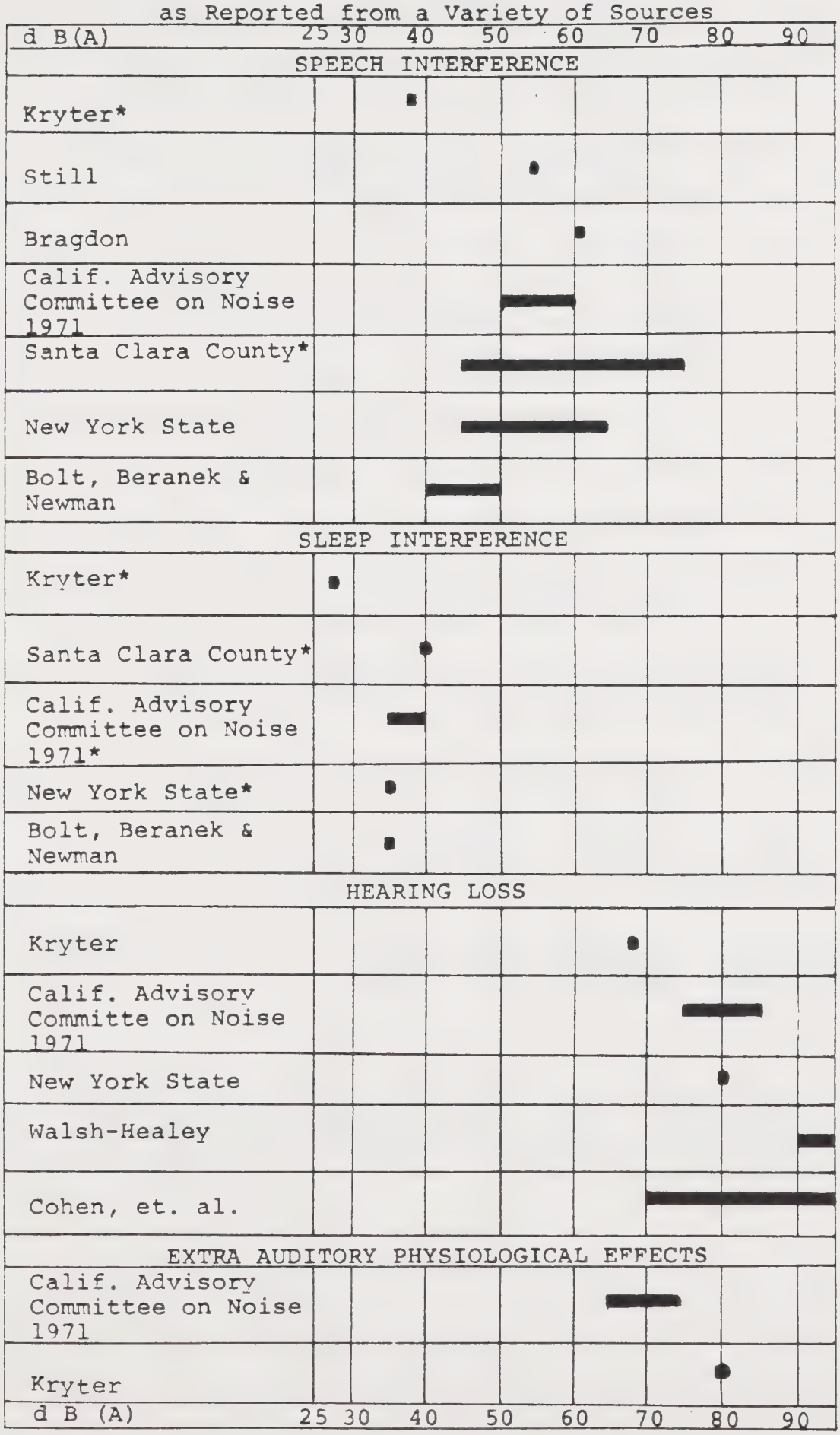
There is little doubt that people are adversely affected by noise, but in addition to people, animals and structures are also affected by noise. Wildlife is generally located far enough away from noisy urban areas to avoid major impacts. However, livestock and poultry ranches in rural areas may be affected by a particularly noisy source nearby. Such cases exist within the county. While structures can be affected by sound, they are more often affected by non-auditory vibrations. Sound levels themselves rarely reach levels which would cause structural damage.

There are a number of areas in which it is known that noise has an adverse effect. The degree to which noise is the cause and the levels at which it produces certain reactions is not as well known, and therefore, a good deal of noise research is concentrated in these areas. Illustration 3.1 summarizes preliminary research data which is so far quite limited and often inconclusive. Note the broad sound level ranges which cause the various reactions and the variance among researchers. Subsequent inventories in this chapter will specifically address the resources impacted by noise.

ANNOYANCE OR HARM TO HEALTH

Before going on to discuss the primary and secondary impacts of noise, it should be noted that people are effected by two broad categories of noise: annoying and harmful to health. The distinction between the two categories is not always clear, but generally speaking, annoying sounds must be heard and must irritate us. Noise which causes harmful effects may not necessarily annoy us, though extremely loud noises are likely to be both annoying and harmful.

Illustration 3.1
Noise Levels at which Various Effects Occur
as Reported from a Variety of Sources



It is generally accepted that people react differently to the same noise. In part, this can be explained by the inherent differences between individuals. This differential reaction, particularly to annoying noises, may also be explained by a number of factors listed below:

1) Individual sensitivity of person exposed.

2) Tonal quality of the noise.

3) Periodicity of the noise.

4) Loudness of the noise.

5) Previous community experience to noise exposure, if any.

6) Time of day when noise occurs.

7) Season of year when noise occurs.

8) Information content of the noise.

9) Background noise.

10) Type of onset of the noise.

11) Attitude toward the noise.

12) Variability of noise level.

13) Duration of noise.

14) Ability of the recipient to control the noise.

15) Anticipation of the noise.

16) Visibility of the noise source.

PRIMARY EFFECT OF NOISE

Illustration 3.1 summarizes research data on four general reactions to noise. The listing that follows outlines in greater detail the various responses to noise. The effects that occur are considered "primary" because they are a direct result of noise:

A. AUDITORY (Source: THE CENTRAL INSTITUTE FOR THE DEAF, 1971, Page 6-54).

1. Temporary and permanent hearing loss.

2. Masking and interference with speech and other informational sounds.

B. PSYCHOLOGICAL AND SOCIOLOGICAL (Source: THE CENTRAL INSTITUTE FOR THE DEAF, 1971, Page 58-123).

1. Sleep interference.

2. Annoyance.

3. Interference with attention.

4. Time judgment.

5. Acoustical privacy.

6. Mental disorders.

C. PHYSIOLOGICAL (Source: THE CENTRAL INSTITUTE FOR THE DEAF, 1971, Page 125-136).

1. Responses of voluntary and auditory-muscular reflexes such as "startle response".

2. Responses of smooth muscles, e.g. constriction of peripheral blood vessels, changes in respiratory and heart rate.

3. Neuro-endocrine system reflexes such as ulcer and stress reactions.

4. Other neurological responses such as nystagmess (involuntary rapid occillation of the eyeball) and vertigo.

D. NATURAL RESOURCES (Source: MEMPHIS STATE UNIVERSITY, 1971).

1. Farm Animals - problems with reproduction by chickens.

2. Wildlife -

a) Observable reactions to noise by: rats, gray whales, rabbits, deer, starlings, fish, insects.

b) Breeding habits of California Condor may be affected by noise. (Source: SIBLEY, 1969, Page 8).

E. ECONOMIC (Source: NATIONAL BUREAU OF STANDARDS,1971, (c)). See Illustration 3.2.

1. Property values - studies were done in Los Angeles and San Francisco concerning airport noises and land values. The Los Angeles study found no statistically significant difference between rate of appreciation in homes with high noise levels and those in "quiet" areas, although turnover rate in quiet areas was 62% of the rate in noisy areas. The San Francisco study did find a statistically significant difference, but in both cases it was impossible to determine the full extent of loss, if any, due to intervening variables.

   A study by the City of Inglewood, found that residential land values were 50% higher in areas where aircraft noise was below 80 PNdb. (Source: HURLBURT, 1972, Page 2).

2. Rental Values - The Inglewood study found vacancy rates 50% lower in areas where aircraft noise was less than 80 PNdb. (Source: HULBERT, 1972, Page 2 Property Values).

   A Portland, Oregon study on the effects of freeway noise on rentals of apartments showed no significant impact on rents.

3. Damage Claims - Los Angeles International Airport has had a total of $2,814,531,725 in damage claims over the 1960's with some cases still pending. Over the nation, airport claims have been estimated at $4 billion.

F. STRUCTURES (Source: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (a), 1973, Page 12-1).

"Airborne sound normally encountered in real life does not usually carry sufficient energy to cause damage to most structures. The major exceptions to this are sonic booms produced by supersonic aircraft, low frequency sound produced by rocket engines and some construction equipment, and sonic fatigue."

SECONDARY EFFECTS OF NOISE

The secondary effects of noise are the unforeseen consequences associated with its primary effects. While harder to enumerate and validate, their impact may be greater in the long run than the primary effects. The list that follows outlines possible and probable secondary effects of noise.

A. PHYSICAL AND PSYCHOLOGICAL IMPACTS

1. Sleep Interference - According to Doctors William P. Wilson and William Zung, lack of sleep may lead to irritability, mental disorganization, dreaming while awake, hallucinations, and automatic behavior; occasionally bordering on temporary insanity. It should be noted though that some of these reactions would only affect people who initially had mental problems. (Source: BERLAND, 1970, Page 68).

2. Dream Interference - Julius Buchwald, psychiatrist for the Downstate Division of New York State Medical Center mentions dream interruption might cause: Nightmarish memories, paranoidal delusions, hallucinations, suicidal and homicidal tendencies, reduced sense of humor and inability to handle everyday frustrations. (Source: BERLAND, 1970, Page 69).

3. Speech Interference - Noise can be a significant interfering factor in education and social intercourse.

4. Constriction of Blood Vessels - might cause secondary impacts on hearing loss, possible interference with pregnancy, etc.

B. ECONOMIC

1. Speech Interference - Speech interference may impact commercial sales and reduce work output in jobs where interpersonal communication is important.

2. Interference with Attention Span - This may also cause reduced work output in office spaces, particularly the open design concept which is used in many new buildings.

Illustration 3.2

Summary of Economic Costs of Noise

Program or Impact (year price level in parenthesis)	Cost: Per Unit Cost	Cost: Average Cost	Cost: Total Cost	Other Expression
Airports & Aircraft				
Purchasing of Fly over Easement of two airports[1]-(1969)		$ 1680	$ 104,420	
Litigation of Los Angeles International-1960's (1969)		45,500	2,814,531,725	
Loss of property value[2]				50% lower land values
Schools-relocation-Los Angeles Unified[4] (1968)	$598/student		951,000	
Abatement -Los Angeles Unified[4] (1968)	$324,290/school		9,080,000	
Purchasing of property - The Nation (1968)			26,400,000,000	
Retrofit (1968)			between $3.8 & 5.7 billion	
Airport usage restrictions - DOT-NASA (1969)			11,000,000 annual	20% airport reduced capacity
Sonic Boom Damage - 3 cities (1961,1964,1965)	$116/claim		592,944	
Ground Transportation				
Property value loss			may be no cost-commercial demand near freeways	
Noise easements near freeways - Nations Urban Freeways (1970)			2,680,000,000	
Relocation of people located near Urban Freeways-Nation (1970)			3,930,000,000	
Industrial				
Accidents due to Noise (1968)			213,000,000	
Modification of new equipment				10% increase of unit cost

Source: NATIONAL BUREAU OF STANDARDS (C), 1971
1-Columbus, Ohio and Denver, Colorado
2-Source: HURLBURT, 1972, Page 2.

3. Animal Reactions - Animal reactions to noise such as reduced reproduction, could cause financial losses in many animal related industries.

4. Declining Residential Land Values, Reduced Occupancy and Rents (See Illustration 3.2) - As previously mentioned, the value of land surrounding airports may be reduced. It was observed in the Los Angeles study that even though residential values might be reduced, there could be a potential increase in value for that property for commercial demand for the property, deterioration of the community may occur because further investment in the lowered property value area would not be warranted, or a higher occupancy turnover rate might occur in the noisier areas. The noisier community might then be less stable and "is more likely to deteriorate aesthetically than one which is quiet." (SOURCE: NATIONAL BUREAU OF STANDARDS (c),1971, Pages 22-23).

C. WILDLIFE

Noise can cause certain species of animals (particularly predators) to abandon their habitat. A decrease in predatory species in an area can lead to overpopulation by other non-predatory herbiforous species who might then propagate to such a point that they would deplete vegetation in the area. Hazards associated with soil erosion are greatly increased as vegetation is depleted.

NOISE SENSITIVE LAND USES

The two previous sections have outlined primary and secondary effects of noise. Unless these impacts can be translated into land use information, it will be difficult for planning departments to effectively deal with the situation. The following matrix, therefore, attempts to relate the probable noise impact that is likely to be experienced by representative uses.

Illustration 3.3
Matrix of Noise Impacts on Land Use

Forms of Primary Noise Impact	Noise * Impact Level	Residential			Commercial			Industrial			Educational				Recreation				Auditorium											
		Bedroom	Living Room	Hotel	Restaurant	Offices	Transportation	Research	Light	Heavy	Classroom	Laboratories	Library	Hospital	Sports	Gymnasiums	Playgrounds	Parks-Passive	Assembly Hall	Church	Concert Hall	Mtn. Pic. Theatre	Leg. Theatre		Rural Residential	Suburban Residential	Urban Residential	Parks	Commercial	Industrial
Hearing Loss	MH-H		X				X			X						X														
Speech Interference	L-MH		X	X	X	X	X	X	X	X	X	X		X	X			X		X		X	X		X	X	X		X	X
Sleep Interference	L-MH	X		X										X												X	X			
Annoyance	M-H	X	X	X	X	X	X	X			X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	X
Extra Auditory Physiological Effects	MH-H		X				X		X	X				X		X											X		X	X
Psychological Effects	MH-H		X							X				X													X			X
Effects on Natural Resources	M-H																	X							X			X		
Economic Effects	M-H	X	X																											
Effects on Structures	H						X			X																X				X

*L - Low Intensity Noise (50db or below)
M - Medium Intensity Noise (50db to 65db)
MH - Medium High Intensity Noise (65db to 80db)
H - High Intensity Noise (80db or above)

Source: VENTURA COUNTY PLANNING DEPARTMENT

The two previous chapters dealt with noise measurements and the effects of noise on various resources or recipients. This chapter which discussed noise evaluation schemes, grows out of these two chapters in the sense that noise evaluation schemes are necessary if we are to meaningfully measure or evaluate noise in light of its affects on people and secondarily animals and structures.

MEASUREMENT VERSES EVALUATION

Noise measurement deals with the basic characteristics of sound: sound pressure, sound power, and frequency. (The decibel, the most well known noise measurement unit, is simply a convenient way of measuring sound pressure and power.) Since noise measurements in decibels by themselves do not provide us with a very complete picture of noise as we perceive it, various weighting scales (the "A" scale being most common) are applied to decibel measurements of noise to produce a truer indication of what we actually hear. At this stage we may know how to measure noise so that it reflects what we hear, but we do not have an adequate measure of noise as we react to it. This is where the various noise evaluation schemes come into play. Noise measurements then, are intended to deal with the basic characteristics of noise, while noise evaluation schemes are intended to relate this information to our lives in a more useable form.

PURPOSES & COMPONENTS OF EVALUATION SCHEMES

The basic purpose of any evaluation scheme is to relate noise information ("measurements") to our lives in a meaningful way. Our determination of what is meaningful can be defined in many ways. Ultimately, what is relevant to us from a noise standpoint is the effects noise has on us and our environment.

While the subtle health effects of noise are important to consider, most people are normally most concerned with the immediate and recognizable effects of noise, namely, speech interference, sleep interference and annoyance. These particular effects are influenced by various factors such as time of day, frequency of the noise and magnitude of the noise. Consequently, an

evaluation of a particular noise effect must take into account such influencing factors. Unfortunately, there is no single evaluation scheme that takes all of these factors into account, and so we must choose between schemes which account for some, but not all the factors in question.

Below is a listing of factors which either influence the effects of noise or the evaluation of its effects. The significance of each factor will be discussed thereafter (Source: WYLE LABORATORIES, (a), 1971, p. 51).

1. Magnitude of the noise with a frequency weighting for hearing response.

2. Duration of the intruding noise.

3. Time of year (windows open or closed).

4. Time of day noise occurs.

5. Outdoor noise level in community when the intruding noise is not present, i.e., ambient noise level.

6. Simplicity of measurement scheme.

7. Measurement over period of time.

8. History of prior exposure to the noise source and attitude toward its owner.

9. Existence of pure tone and impulsive character in the noise.

The ambient, or background noise level which was alluded to above can easily vary with time of day, year, or location. Generally, the higher the ambient level the less one will be affected by intruding noises. This, however, may depend upon the characteristics of the ambient level.

Measuring sound levels over time is extremely important because it is the only way to acquire a full and complete picture of the noise situation. Unless such measurements are taken, there can be no assurance that the readings taken are uncommonly high or low. The ideal measurement would be for 24 hours on various days in different seasons. This, however, is often impossible, and so measurements are sometimes taken at representative intervals throughout the day. Such measurements can be as statistically valid as a 24-hour measurement.

One's history of prior exposure is important to consider when evaluating noise, because people are often affected less if they have been exposed to a given noise before. People may also react differently to a noise with which they have a positive association, such as their pet dogs.

Pure tone or narrow band noises are generally more annoying than are noises of wider frequency bands and so, should be accounted for. Similarly, impulsive noises such as gunshots have a greater capacity to startle people than do noises with less abrupt onsets.

Finally, and perhaps most importantly, any noise evaluation scheme must be relatively simple and easy to use. If it is not, it will not be employed. Thus, lack of a useable noise evaluation system could jeopardize chance of monitoring of the noise situation or enforcement of a noise ordinance.

NOISE EVALUATION SCHEMES

(Source: U.S. ENVIRONMENTAL PROTECTION AGENCY (a), 1973, p. 2-6 to p. 2-8)

While there are a number of noise evaluation schemes, all fall into one of three categories: psychoacoustic, statistical, and time-history. These schemes are discussed below:

PSYCHOACOUSTIC SCHEMES

These schemes attempt to predict a person's reaction to noise based on previously measured human responses to noise.

Perceived Noise Level (PNL)

PNL was developed in the late 1950's by Karl Kryter, a doctor of psychology at the Standford Research Institute, who spent much of his time dealing with human responses to noise. This scheme is expressed in decibels (dB) and, "was intended to present the sound pressure level of an octave band of noise at 1,000 HZ which would be judged equally noisy to the sound to be rated. Equally noisy means that in a comparison of sound one would just as soon have one noise as the other at his home during the day or night".

Over time, Kryter and his associates refined this technique to include discrete frequency components of tones associated with aircraft flyovers. The refinement is referred to as the Tone Corrected Perceived Noise Level, abbreviated as PNLT. Further improvements to the scheme were made when it was determined that long duration flyovers were more annoying than short duration flyovers. As a result, PNLT was modified by Kryter and Pearsons to account for the duration of the noise signal. This new scheme is called the Effective Perceived Noise Level (EPNL) and is somewhat more exact than the A-weighting scale in relating man's perception of aircraft noise. For this reason, it has become a major evaluation tool of the Federal Aviation Administration in the certification of aircraft noise.

For most sounds, the Perceived Noise Level exceeds the A-weight noise level by 13 dB, the differences ranging typically between 11 and 17 dB, depending primarily upon the amount of correction for puretones. The Tone Corrected Perceived Noise Level scale (PNLT) requires complex analysis and instrumentation to define a sound. Thus, it has not been utilized extensively, since in most instances the simple A-weight sound level appears to adequately describe environmental noise at a given location and time and with relatively simple instrumentation.

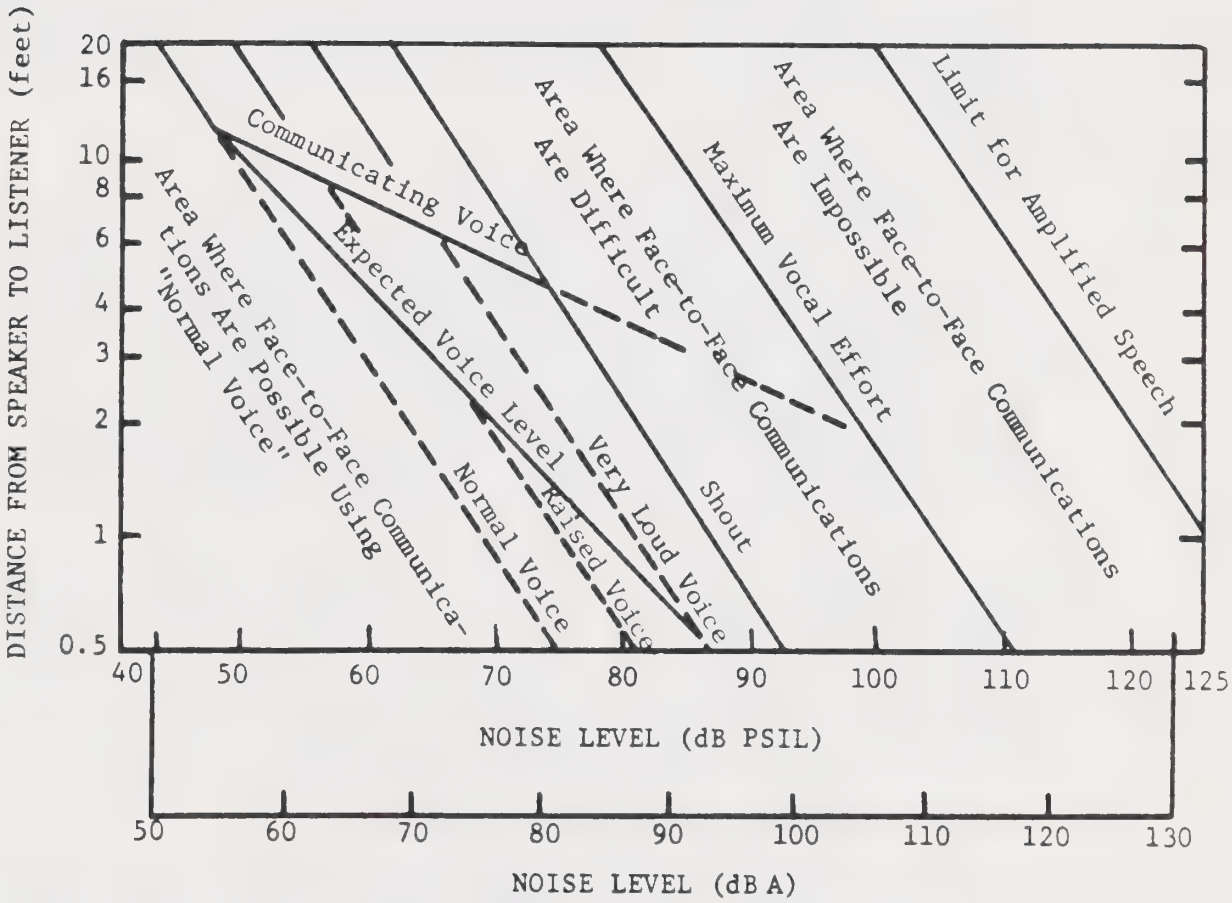
Speech Interference Level (SIL)

SIL was introduced by Leo Beranek in 1947 to evaluate the average general masking capability of the noise. As originally formulated, SIL was defined as the average of the octave-band SPL's in the 600-1,200, 1,200-2,400 and 2,400-4,800 Hz octaves. Since that time, the preferred frequencies for octave bands have been changed. One modern version of the SIL is the average of the SPL's in the three octave bands centered at 500, 1,000, and 2,000 Hz. So many variations in preferred octave bands have been developed that a shorthand notation is now used: SIL (5, 1, 2), this shorthand terminology refers to the three octave bands centered at 500, 1,000 and 2,000 Hz. At the present time, the American National Standards Institute is promoting the acceptance of SIL (.5, 1, 2, 4) as providing the best estimate of masking ability of a noise.

The simple A-weighted sound level (dBA) is also a useful index of the masking ability of a noise and compares favorably with SIL as can be seen on Illustration 4.1. The A-weighting process emphasizes the median frequencies, as do the various SIL's. However, in contrast to most SIL schemes, A-weighting does not ignore the lowest frequencies where speech becomes intelligible.

Illustration 4.1

Speaking Levels Required When Talking Over Various Distances and Background Noise Levels



Voice level and distance between talker and listener for satisfactory face-to-face speech communication. An example for interpreting this chart: Jet aircraft cabin noise is roughly 80 ±2 dBA. An 80 dBA in their expected (raised) voice level, seat mates can converse at 2 feet and, by moving a little, can lower their voices to normal level and converse at one foot. To ask the stewardess for an extra cup of coffee from the window seat (4 feet), one would need to use his very loud communicating voice.

Source: NATIONAL BUREAU OF STANDARDS(a), 1971, pg. 29

Illustration 4.1 charts out the speaking effort one must exert when speaking over certain background noise levels and over various distances.

STATISTICAL SCHEMES

These schemes describe the average noise level occurring over a given percentage of time. As such, they are merely statistical representations of noise occurrences; they have no direct relationship to non-auditory human responses to noise as the psychoacoustic schemes do.

Statistical Level

One of the dominant characteristics of environmental noise at any location is that it fluctuates considerably from moment to moment. Thus, to accurately describe noise at a location, a statistical approach that takes time into account must be employed. This can be achieved by plotting a curve that depicts the cumulative distribution of sound levels over time. In doing so, it can be determined what sound levels are exceeded during a given percentage of time. The percentages broken out most often are: 10%, 50%, and 90%. (See Illustration 4.2)

The sound pressure level exceeded 10 percent of the time, expressed as L_{10}, gives an approximate measure of higher level and short duration noise. A measure of the median sound level is given by the L_{50} and represents the level exceeded 50 percent of the time. The ambient sound level is approximated by L_{90}, which is the sound level exceeded 90 percent of the time.

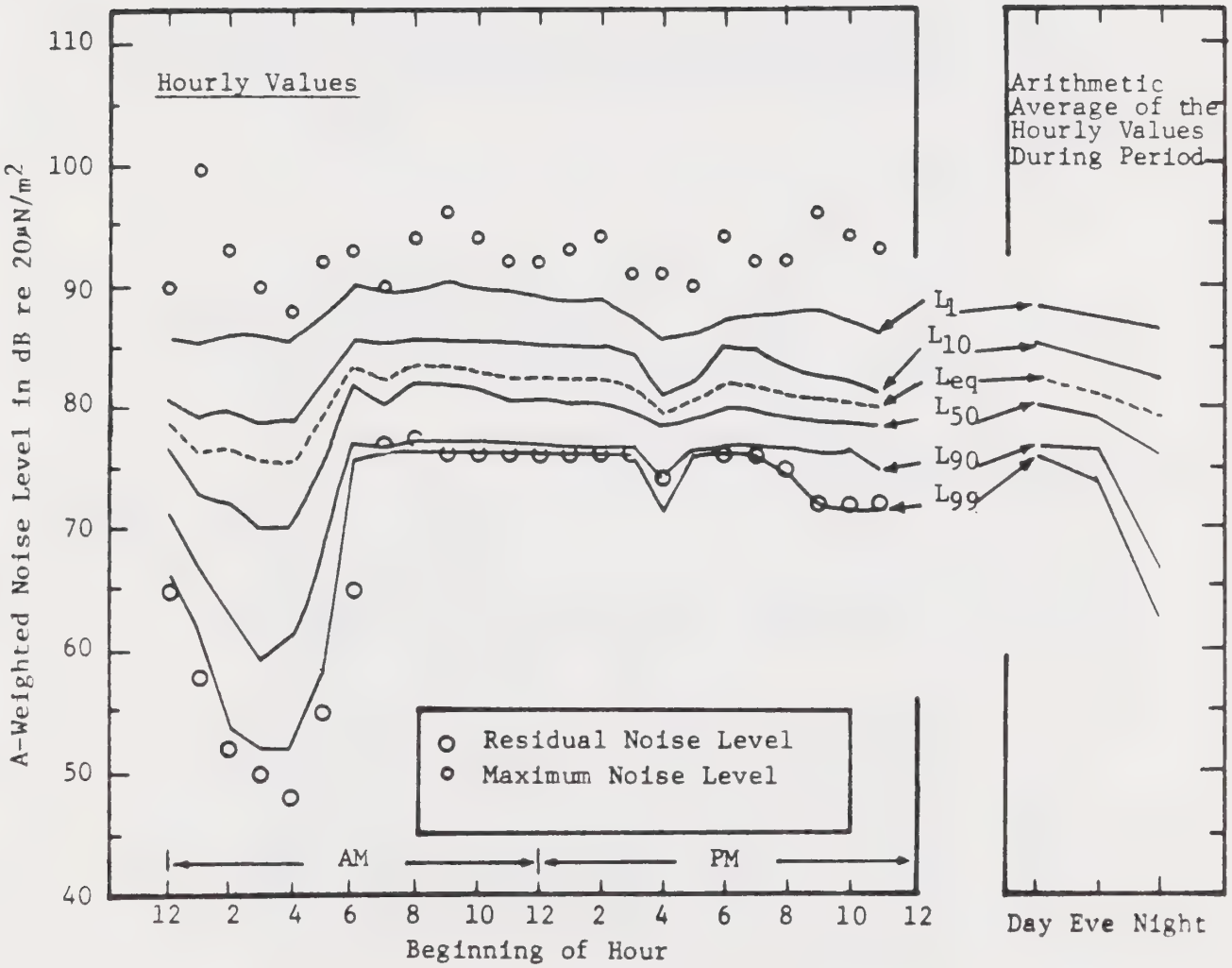
The Energy Mean Noise Level (Leq)

Leq measures the average magnitude of all sounds occurring over a given period of time. It differs from Lx schemes in that the Lx is an arithmetic average of decibels. Leq on the other hand, determines the average of the sound power and therefore takes into account the logarithmic characteristics of decibels. Despite this difference, Illustration 4.2 points out that there is little difference between the two schemes.

In terms of assessing the effects of noise on humans, Leq is one of the most important measures of environmental noise, since there is experimental evidence indicating it accurately describes the onset and progression of hearing loss. There is also evidence that it correlates with human annoyance to noise.

Illustration 4.2

Various Measures of the Outdoor Noise Level



Source: SWING (a), 1974, pg. 8

The statistical measures described above simplify the problem of quantifying environmental noise and are used extensively. However, these measures may be misleading if used exclusively when comparing two environments differing in their noise profiles. For example, one environment could have an L_{50} noise level of 40 dBA with great variations in level while a second environment could have an L_{50} level of 45 dBA comprise of sounds of about the same level. It is quite possible that the quieter environment could have peaks which far exceed the louder environment. Using the L_{50} statistical scheme could not tell you this. These peaks could be detected by using additional measurements, such as L_{10}, L_1, to give a better overall representation of the noise environment.

TIME-HISTORY SCHEMES

These schemes use the various measurement scales (usually "A") to evaluate the sound power of a noise over a period of time (usually 24 hours) with weightings for night-time noises.

Day-Night Average (LDN)

LDN is the energy equivalent or average, A-weighted sound level, taken over a 24-hour period, with a 10-decibel penalty factored into the original Leq sound level measurement for nighttime sound levels. This factoring process makes the LDN somewhat harder to work with.

Composite Noise Rating (CNR) and Noise Exposure Forecast (NEF)

CNR and NEF were introduced in the early 1950's and are similar, except that NEF accounts for both duration and pure tone content of each single event, whereas CNR does not. These two schemes are based on variations in EPNL which is a psychoacoustic scheme.

Community Noise Equivalent Level (CNEL)

CNEL was recently introduced by California and represents the average noise over a 24-hour period with different weighting factors for noise levels occurring during the day, evening, and night periods. Essentially, it is an Leq for a 24-hour period with special corrections of 35 and 10 dB, respectively, factored into the original Leq level for evening and nighttime. This factoring is cumbersome and makes CNEL somewhat difficult to work with. It is designed to account for the increased disturbance caused by noise events during the evening and the night.

Illustration 4.3

Corrections to be Added to the Measured Community Noise Equivalent Level (CNEL) to Obtain Normalized CNEL

Type of Correction	Description	Amount of Correction to be Added to Measured CNEL in dB
Seasonal Correction	Summer (or year-round operation)	0
	Winter only (or windows always closed)	-5
Correction for Outdoor Residual Noise Level	Quiet suburban or rural community (remote from large cities and from industrial activity)	+10
	Normal suburban community (not located near industrial activity)	+5
	Urban residential community (not immediately adjacent to heavily traveled roads and industrial areas)	0
	Noisy urban residential community (near relatively busy roads or industrial areas)	-5
	Very noisy urban residential community	-10
Correction for Previous Exposure & Community Attitudes	No prior experience with the intruding noise	+5
	Community has had some previous exposure to intruding noise but little effort is being made to control the noise. This correction may also be applied in a situation where the community has not been exposed to the noise previously, but the people are aware that bona fide efforts are being made to control the noise.	0
	Community has had considerable previous exposure to the intruding noise and the noise maker's relations with the community are good.	-5
	Community aware that operation causing noise is very necessary and it will not continue indefinitely. This correction can be applied for an operation of limited duration and under emergency circumstances.	-10
Pure Tone or Impulse	No pure tone or impulsive character	0
	Pure tone or impulsive character present	-5

Source: Wyle Laboratories (a), 1971, pg. 54

Illustration 4.4

Two Examples of Calculation of
Normalized Community Noise Equivalent Level

Factor	Aircraft Landing Noise in Noisy Urban Residential Community (1)			Traffic Noise in Old Residential Area Near City Center (2)		
	Day	Eve.	Night	Day	Eve.	Night
Energy Equivalent Noise Level (Leq) in dB(A) for Time Period	80	83	75	56	57	53
Duration and Time of Day Corrections Factor[3]	-3	-4	+6	-3	-4	+6
Subtotals which are added Logarithmically to obtain CNEL	77	79	81	53	53	59
Community Noise Equivalent Level	84			61		
Additional Corrections from Table 11:						
Seasonal	0			0		
Residual Noise Level	-5			0		
Experience & Attitude	0			-5		
Pure Tone or Impulse	5			0		
Total Additional Corrections	0			-5		
Normalized CNEL	84			56		
Actual Reaction	Extensive Lawsuits and Political Pressure			No Reaction		

(1) Location F in Figures 7 and 23

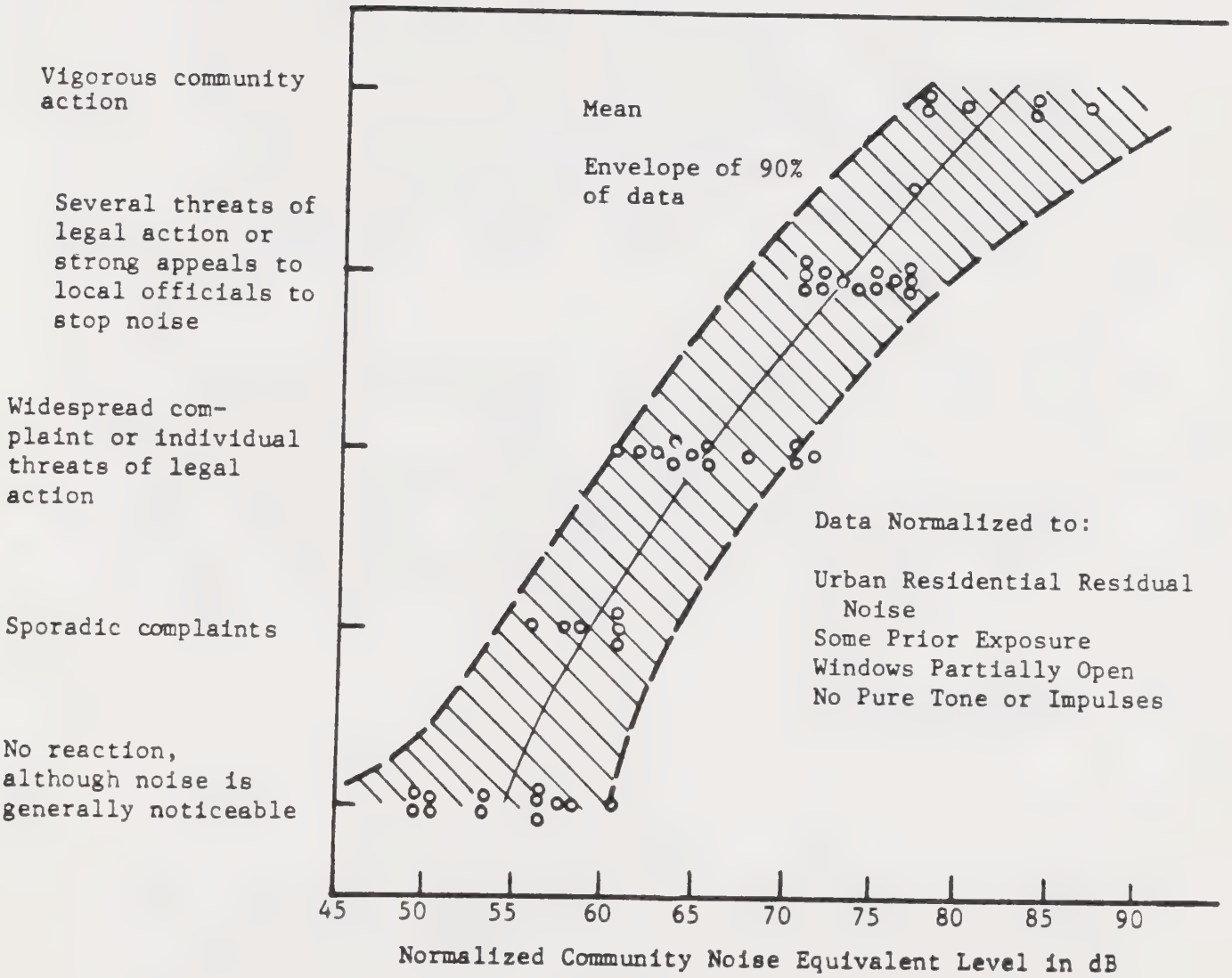
(2) Location L in Figures 7 and 23

(3) Duration correction is $(10 \log \frac{n}{24})$ where n is the number of hours in the period.

Source: WYLE LABORATORIES, (a), 1971, pg. 55.

Illustration 4.5

Community Reaction to Intrusive Noise



Source: WYLE LABORATORIES(a), 1971, pg. 59.

It differs from LDN only in the fact that it has a third weighting for evenig hours.

Normalized Community Noise Equivalent Level (NCNEL)

NCNEL is simply CNEL that has been corrected to take into account tonal qualities, seasonal differences, previous community exposure, etc. Like CNEL, it is based upon an Leq measurement with penalties factored in for day, evening, and nighttime noises. It goes beyond CNEL by adding penalties to the basic CNEL noise level for a variety of community factors. These factors and their respective penalties as outlined on Illustration 4.3 and were derived much like the psycho-acoustic schemes were in that they were correlated with actual human responses to noise. Illustration 4.4 illustrates examples of how a NCNEL level was derived for two environments.

Note how the process begins with a Leq level which is converted to CNEL by factoring in time of day penalties, and finally modified with the addition of penalties to arrive at a NCNEL level. Ultimately, a community response to this level can be gauged using Illustration 4.5 which was correlated with actual community responses to given NCNEL levels. Obviously, NCNEL takes into account most of the factors listed at the beginning of this chapter; all but two - ease of measurement and impulsive characteristics of the noise.

CONCLUSION

Illustration 4.6 summarizes how effectively each of the various noise evaluation schemes dealt with the noise influencing factors cited earlier. These factors reflect our noise concerns, be they nighttime noise, pure tone, long duration, etc. It is evident that no single evaluation scheme accounts for all factors and, consequently, no scheme can adequately address all of our noise concerns.

Generally speaking, the psychoacoustic schemes are fairly complex and are aimed at research into human responses to noise. As such, these schemes are not commonly employed by planning agencies.

The statistical schemes are relatively easy to use and understand and are therefore often used in noise ordinances around the country.

The time-history schemes are relatively simple in concept, but they require numerous computations to arrive at a final figure. This feature makes them less suited for ordinance work than the statistical schemes. Time-history schemes, however, have the advantage of being able to predict community responses to noise. As such, they might be best used for compatible land use planning.

Illustration 4.6
Factors For Ideal Rating Scheme

COMPARISON OF MEASUREMENT FACTOR TO VARIOUS MEASUREMENT SCHEMES	Consider Frequency Weighting For Hearing Response	Consider Duration of Intruding Noise	Consider Time of Year	Consider Time of Day	Detect Background Noise Level	Simplicity of Measurement	Measurement Overtime Period	Consider Community's Prior Exposure	Consider Pure Tone	Detect Noise Impulse
Measurement Schemes										
Frequency Weighted										
"A"	Y	N	N	N	Y		N	N	N	Y
"B"	N	N	N	N	Y		N	N	N	Y
"C"	N	N	N	N	Y		N	N	N	Y
Octave Band	P	N	N	N	N		N	N	N	D
Measurement Evaluation Schemes										
Psychoacoustic										
PNL	Y	P	N	N	N	N	D	N	N	P
EPNL	Y	P	N	N	N	N	D	N	Y	P
SIL	Y	N	N	N	N	Y	P	P	N	Y
Statistical Level										
Lx	Y	Y	N	N	Y	Y	Y	N	N	Y
Leq	Y	Y	N	N	P	P	Y	N	N	P
Time History										
NEF	Y	Y	P	Y	N	N	Y	P	Y	N
CNR	Y	N	P	Y	N	N	Y	P	N	N
CNEL	Y	Y	P	Y	N	D	Y	D	P	N
NCNEL	Y	Y	Y	Y	N	D	Y	Y	P	N
LDN	Y	Y	P	Y	N	D	Y	P	P	N

Y - Yes P - Possibly D - Difficult N - No

SOURCE: Ventura County Planning Department

The preceding chapters provided a general understanding of noise. This chapter will identify the general noise sources within the county, as background for the more detailed review of noise sources in a following chapter.

NOISE SOURCES & RECIPIENTS

This element deals with the problem of noise from the standpoint of noise sources or generators, and noise recipients. This distinction is somewhat artificial, because recipients can be sources as well. Nevertheless, typology provides a convenient way of examining the problem.

Illustration 5.1 summarizes the major generators within the county. Three major noise sources are identified: people, transportation and machinery. Corresponding to each type of source is information on the characteristics of the noise it produces, specific uses which might generate the noise and finally, some sample noise measurements taken of sites within the county. These measurements, however, are incomplete and are provided to give a general indication of the noise levels associated with various uses.

For future reference it should be noted that there are primary sources from which noise directly radiates, and secondary sources which do not generate noise themselves, but attract uses which do. For instance, a shopping center is primarily a secondary source because by itself it does not generate much noise. The traffic attracted to the center is considered a primary noise course.

PAST NOISE LEVELS

To provide us with a perspective of our present noise levels, a review of historic levels would be instructive. Illustration 5.2 contains sound level readings from various areas of the county. They were compiled by L. C. McGahan, an acoustical engineer at Point Mugu and represent the extent of our historic noise data. As near as possible, the readings represent noise levels at the same place. The increases over the 10-year interval in some cases correspond to the 1 dB average annual increase nationwide.

Illustation 5.1
Summary of Types of Noise Generated

	How Generated	General Sound Character: Frequency	Duration	Intensity	Uses Which Might Generate Noise	Illustrative Reading (10 Minute Period)
People	Noises generated by human effort without mechanical assistance might include talking, argument, children at play	Wide band middle frequencies	Intermittent	Moderate	Residential, parks, entertainment, elementary, junior and senior high schools, colleges, meeting centers, neighborhood commercial, churches, transit terminals	At Washington Elementary School Playground (Thompson Blvd., Ventura) L_{10}=75dB(A) L_{50}=61dB(A) L_{90}=50dB(A)
	Large mass events such as sporting events	Wide band middle frequencies	Intermittent	Moderate to loud		
	Musical instruments	Tonal-variable	Intermittent	Moderate to loud		
Transportation	Noises generated by transportation vehicle might include: Cars & Motorcycles	Wide band middle frequencies	Intermittent to constant	Moderate to high	Primary Uses (uses where these noises are generated from): airports, railroad tracks, switching yards, & stations, roads, parking structures; Secondary Uses (uses which attract these vehicles): large residential tracts, multi-family, regional parks, high schools & colleges, office bldgs., strip commercial, heavy industry, warehousing, contract constr., oil storage fac., packing plants, hotels/motels, hospitals, service areas.	1. Short Passenger Train from Carpinteria to Oxnard peak at 100' from tracks 73 dB(A)
	Trucks & Busses	Wide band lower freq.	"	High		2. Traffic at Ventura Blvd. & Lewis Road in Camarillo L_{10} = 72 dB(A) L_{50} = 64 dB(A) L_{90} = 55 dB(A)
	Piston airplanes	Wide band lower freq.	Constant	High		
	Jet airplanes	Tonal lower freq.	Constant	High		
	Helicopters	Wide band middle freq.	Intermittent	High		
	Trains	Wide band lower freq.	Intermittent	High		
Machinery	Noises generated by machinery might include: power saws, planers, transformers	Narrow band	Constant	Moderate to high	Residential, police & fire stations, parks, schools, some meeting centers, office bldgs., grocery stores, wholesale/warehousing, auto & truck repaid, constr., "heavy" industries*, processing plants, mining oper., bus, truck, train & airplane terminals, harbors, oil drilling & compressor sites.	1. 3rd. Street & Wilson Ave., in Oxnard, measurement of an ice company L_{10}(traffic influ.)= 76 dB(A) L_{50}(co. influ.) = 70 dB(A) L_{90}(co.influ.) = 68 dB(A)
	Sirens	Narrow band	Intermittent	"		
	Punch Pressor, riviting, pile drivers, hammers	Wide band	Impulse	High		2. Sand & Gravel operation in Moorpark L_{10}(traffic influ) = 83 dB(A) L_{50}(traffic, Co.influ)= 72 dB(A) L_{90}(traffic, Co.influ)= 61 dB(A)
	Heavy constr. equipmt., loaders & compactors, power saws, chainsaws, sirens, radio, T.V., compressors, discharge ducts, cooling towers	Wide band	Intermittent	Moderate to high	*"heavy" industries means any fixed location industry which has heavy equipment.	

Source: VENTURA COUNTY PLANNING DEPARTMENT

Illustration 5.2
History of Noise In Ventura County

	Sound Pressure Level-1961/1962	Sound Pressure Level 1971	Change
Oxnard	55.5 dB	65.0 dB	+9.5 dB
Ventura	52.5	61.0	+8.5
Camarillo	51.5	58.0	+6.5
Port Hueneme	54.5	58.5	+3.7
Ojai	50.0	53.75	+3.75
Point Mugu	52.5	60.0	+7.5
Camarillo State Hospital	48.5	49.0	+0.5

Source: MCGAHAN, 1971, pg. 16

NOISE SOURCES & STUDY ZONES

This section will discuss significant noise sources within the county and the study zones that surround them. In most cases, the sources under discussion have not had actual noise measurements taken of them, but instead have had theoretical noise levels generated for them by one of several means. Such noise levels, expressed as contour lines around the source, should be considered an initial step in defining the extent of a source's noise radiation.

For the present, the contour lines around the various sources should be considered study zones within which specific acoustical studies should be undertaken to determine the exact noise conditions surrounding a given source or recipient. Such studies may be undertaken for informational reasons only, or in response to an adopted ordinance which has established certain noise levels which must be adhered to. The study zones vary in accordance with the noise source and will be discussed when addressing the various sources.

The significant noise sources within the county will be discussed by noise type, beginning with transportation. Reference should be made during these discussions to the county-wide maps enclosed and to detailed maps of the various jurisdictions.

TRANSPORTATION

Transportation generated noises are by far the most pervasive sources within the county. Among the transportation sources, vehicular traffic creates the greatest impact on the county's resources.

Highways, Roads, Streets

The 65 dB(A) contour line was used for analysis purposes, both because it is the level specified in Government Code Section 65302(g) and because it is the level above which the Department of Housing and Urban Development will not consider making financial commitments. This 65 dB(A) contour line was also the lowest sound level contour consistently provided by all input agencies. The contours were plotted for freeways, highways, and selected roadways and streets.

The contours generally represent peak noise impact of one truc, on that facility. Under the worst conditions (on-grade roadways) the 65 dB(A) mean truck level extends approximately 550 feet from the edge of the pavement, creating contours of 1,100 in total width. The county-wide maps in this report illustrate the general noise impact of contoured roads in Ventura County. While the original noise maps for particular roadways within various jurisdictions should be used to establish the more precise location of contours. The derivation of the contours for the various thoroughfares are discussed below.

State Highways and Freeways

District Seven of CALTRANS provided information on State Highways and Freeways. The contours represent the peak mean diesel truck level. A variation of ± 6 dB(A) is built into this contour and is therefore assumed to incorporate possible variation between present and future traffic volumes. The contours reflect topography and other right of way influences on noise attenuation (i.e., elevated or depressed roadways). Noise barriers, such as structures, beyond the right of way were not considered. Proposed routes were plotted, when an adopted alignment was known.

County Roads

Contours for county roads were developed by the Ventura County Public Works Department using the same methodology devised by District Seven of CALTRANS. This included a series of templates based on Test Method Number California 701-A's nomographs. These templates summarized the noise attenuation for several types of

roadways ranging from 20 foot depressed to "on-grade" to 20 foot fill. As "on-grade" represented worst case conditions, this template was used to determine noise contours on County Roadways. These contours represent the same peak mean diesel truck level variation (±6dB(A)) as in the State Highways and Freeways. It does not reflect topographical and other right of way influences. Present and future routes that have definite alignment proposals were plotted.

City Streets

Contours for city streets were prepared by the respective cities' Public Works or Planning Departments in the same manner as the County Road contours, with the exception of the City of Thousand Oaks where right of way topography, structures, and speed influences were also considered.

Airports

The contours around airports differ from those around highways in that they are not based on peak noise levels, but rather on noise levels over time with weightings applied for daytime, evening, and nighttime hours. These contours are intended to better reflect the communities reaction to noise than are peak level contours. Generally, the location and size of airport contours are based on airport flightpaths, type or size of aircraft, and number of operations. Area covered by the contours represents the noise patterns of landing, takeoffs, and flight patterns of airplanes using the facility.

Two contour levels were used: 55CNEL and 65CNEL. The 55CNEL contour was used because it indicates the greatest area which may be impacted by the various airports. For consistency, this contour was plotted for each airport. Because no formal 55CNEL contours had been plotted for Poing Mugu, Santa Susana, or Santa Paula Airports, one was approximated for each facility. A 65 dB contour is required by law to be in the element and so a 65CNEL contour is also shown for each airport. This contour is also used by the Department of Aeronautics to determine where residences without sound insulation should be located.

NOTE: The following criteria was used to help determine which roads to contour; they were not necessarily used by each entity. (1) Roads of 50 mph having a traffic count of 280 vehicles per hour. (2) Roads of 30 mph having a traffic count of 490 vehicles per hour. (3) Roads of 50 mph having a truck count of 48 vehicles per hour. (4) Roads of 30 mph having a truck count of 38 vehicles per hour. Using these criteria, a peak 65 dB(A) contour could be approximated.

Pt. Mugu - This facility's noise contours were created by Holt, Beranek and Newman in "Noise from Aircraft Operations - Naval Air Station Point Mugu, California". This study expressed contours on the basis of Composite Noise Rating (CNR) at the 100 and 115 dB level, instead of CNEL (see Chapter III for difference between these noise measurements scales). The 55CNEL contour was estimated by the Ventura County Environmental Resource Agency at the request of Ventura County Airports and Harbor Department. This is only an approximation of the 55CNEL contour and should only be used to determine areas for future noise studies. Only present day operations are shown as there will be no foreseeable change in extent of operations.

Ventura County Airport - The 55CNEL contour was created by Wyle Laboratories as cited from the City of Oxnard Planning Department's document, "The Proper Role for the Ventura County Airport at Oxnard". This report shows three levels of operation: 306, 540 and 810 average daily operations. Using information provided by Ventura County Airports and Harbors, it was determined that at the present time there are approximately 450 daily operations based on annual averages. The 540 daily operations contour line was therefore used to represent the present noise levels, while the 810 average daily operations contour line was used to represent potential operations. The Ventura County Airports and Harbors Department furnished the 65CNEL contour of the facility which reflects the above operation levels.

Oxnard Air Force Base - Wyle Laboratories created noise contours for this facility based on Adrian Wilson Associates' Camarillo Airport Environmental Impact Statement dated 1970. This study showed several sets of contours based on a variety of aircraft operations. One of these operation levels was recently revised by the Board of Supervisors.

According to "Revised Application of the County of Ventura for the Oxnard Air Force Base" as prepared by Ventura County Airports and Harbors Department and adopted by the Board of Supervisors on May 15, 1973, operations shall not exceed 28 two-engine jet operations per day. However, it should be noted that this level of operation does not saturate the facility's potential capacity. Due to the lack of knowledge of the total capacity of the facility and Board of Supervisors' resolution (File No. 202.200), the contours representing the 28 two-engine jet operations were used because it describes the most probable level of operations known at this time.

The contours prepared by Wyle Laboratory represents the following operations levels: 28 two-engine jets, 26 twin otter and 306 general aviation (no jets) daily operations. These were expressed as potential 55 and 65 CNEL contours, due to the current non-operational status of the airport. It has not yet been resolved as to whether the facility will become operational again.

Tierra Rejada - Noise contours for the proposed Tierra Rejada facility were created by Hydrospace Research Corporation. The 55 and 65 CNEL contours were taken from the "Environmental Impact Study of the proposed Tierra Rejada Airport", October 1971, prepared by the Department of Airports and Harbors.

Santa Susana and Santa Paula Airports - The contours for Santa Susana and Santa Paula airports were developed by the Ventura County Planning Department. The 65 CNEL contour was developed in accordance with a methodology described in Wyle Laboratories "Simplified Procedures for Estimating the Noise Impact Boundary for Small and Medium Size Airports in the State of California", May, 1973. The 55 CNEL contour is an approximation based on an extrapolation of the 65 CNEL contour. Data on daily operations were provided by the respective airport managers and reviewed by Ventura County Airports & Harbors Department.

Railroads

There are two classifications of railroad noise: line haul and yard operations. Line haul operations are best typified by high speed freight and passenger trains. Yard operations are related to switching and locating box cars at industries. Similar to airports, the 55 and 65 CNEL or Ldn contours have been computed for line haul and yard operations. Line operations were determined by the procedure established in "Wyle Research Technical Memorandum Number 59197-1", dated March 15, 1974, which deals with a simplified procedure for assessment of noise emitted by on-line railroad operations in the "Assessment of Noise Environment Around Railroad Operations", dated July, 1973. Contrary to the State Government Code 65302(g), contours were developed for the Ventura County Railroad by the Ventura County Planning Department, due to the lack of resources available to that railroad company. For line haul operations, the 55 Ldn is 250 feet from the track for four operations occurring between 7:00 a.m. and 10:00 p.m., while yard operations extend 1,000 to 1,200 feet from the tracks. These contours reflect potential as well as existing conditions as the company did not foresee a change in operations.

Initially, contours were expected from the Southern Pacific Transportation Company in compliance to the aforementioned government code. Unfortunately, contour information was not received from the company. Based on the procedures used for line haul operations, the 55 and 65 Ldn contours were then developed by the Ventura County Planning Department. The 55 Ldn contour lies 1,500 feet from the tracks and is considered a worse case situation for the county. This contour is based on an average of 15 operations per day with 11 operations occurring between the hours of 7:00 a.m. to 10:00 p.m., while yard operations extend 1,000 to 1,200 feet from the tracks. These contours reflect potential as well as existing conditions as the company did not foresee a change in operations.

Initially, contours were expected from the Southern Pacific Transportation Company in compliance to the aforementioned government code. Unfortunately, contour information was not received from the company. Based on the procedures used for line haul operations, the 55 and 65 Ldn contours were then developed by the Ventura County Planning Department. The 55 Ldn contour lies 1,500 feet from the tracks and is considered a worse case situation for the County. This contour is based on an average of 15 operations per day with 11 operations occurring between the hours of 7:00 a.m. to 10:00 p.m. and 4 operations from 10:00 p.m. to 7:00 a.m. and consider additional noise due to steel trestles. This reflects the highest number of operations which occur within the County (Santa Barbara County line to the Oxnard freight yards). The operation figures were obtained at the Yardmaster office at the Oxnard Freight Yard. The yard operations, though, were not calculated because of the need of more detailed information and lack of sufficient time. Until the appropriate calculations can be made, an interim 55 CNEL contour of 2,500 feet from the tracks has been estimated.

Secondary Sources

Most secondary sources are traffic related. Shopping and commercial centers, for example, do not generate very much noise except for their air conditioning or refrigeration units, but they do attract considerable amounts of traffic. For this reason, all major commercial uses were plotted on the noise contour maps as potential noise sources. No contours were drawn around these uses because of their generalized location on the map. It was felt, however, that a noise evaluation noise zone of 1,000 feet should be defined around each source. Other secondary traffic related sources include: schools, large industrial concerns, and parks.

MACHINERY

Machinery is a second major source of noise within the County and is usually associated with industry. An attempt was made to locate potentially noisy industrial uses by using the Regional Transportation Study's 1973 land use map and the 1971 Ventura County Standard Industrial Code (SIC) guide. Potentially noise uses were selected from the SIC guide and plotted on the noise contour map. This information was supplemented by data from knowledgeable people from local jurisdictions. No contours were designated around these uses because of the uncertainty that they are in fact noise producers. A study zone of 1,000 feet around each use is suggested as an area to begin any further studies of the use.

PEOPLE

People are not usually considered noise sources, and rightly so, because they generate far less noise than do the other sources mentioned thus far. It should be remembered, however, that they are at the heart of all the noise generated. People drive cars, ride in aircraft, and operate machines; they also require the services and products which directly produce noise. Among the uses which do actually generate human noise might be mentioned: school and playgrounds, stadiums and parks.

NATURE OF INFORMATION

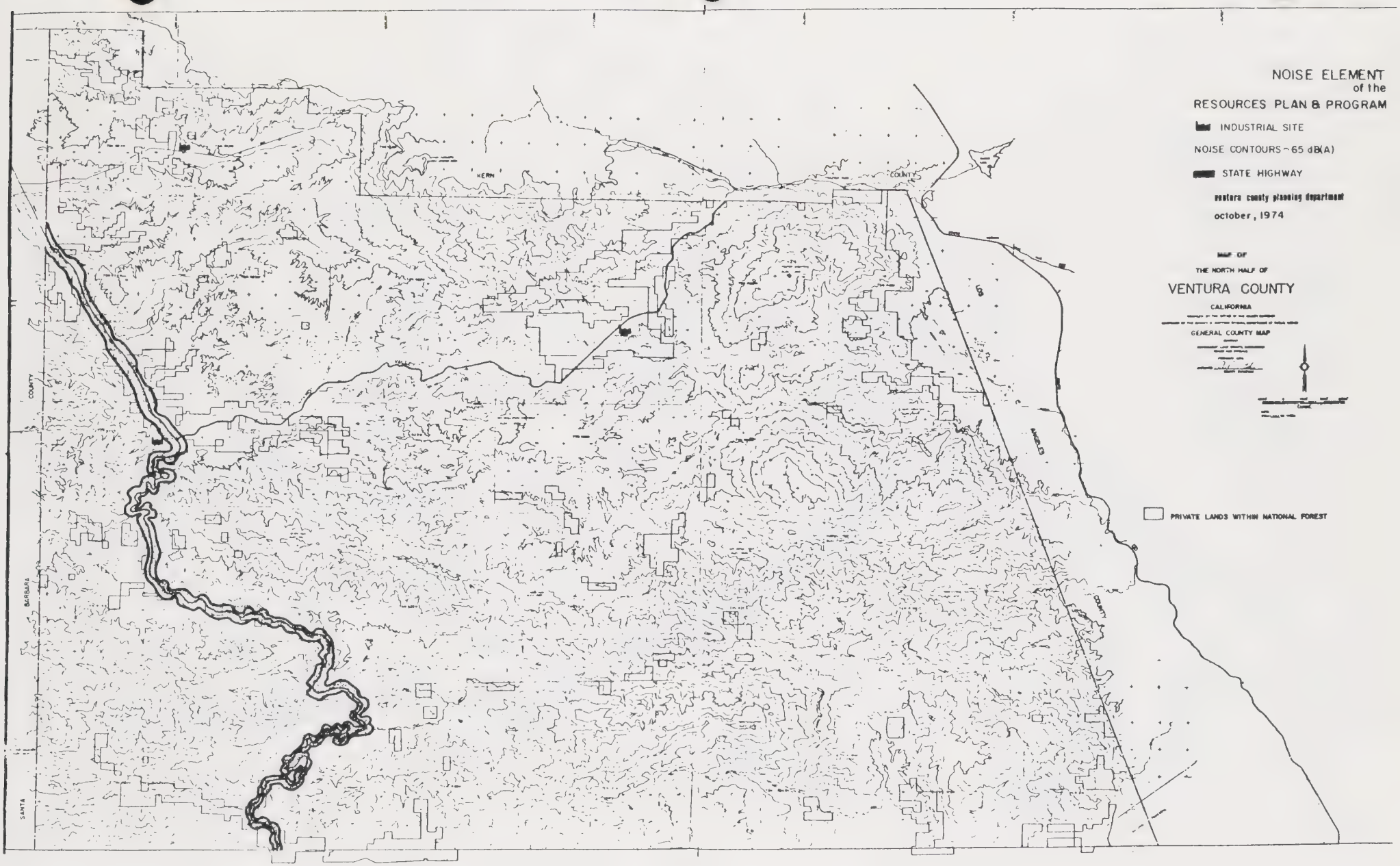
The pervious section in this chapter outlined the major types of noise sources within the county and located them on a county-wide map and on local, jurisdictional maps. This section is intended to inform the reader of the nature of the information that went into the various inventories thus far compiled. This is done to provide a better perspective of the problem and to assist in decision making.

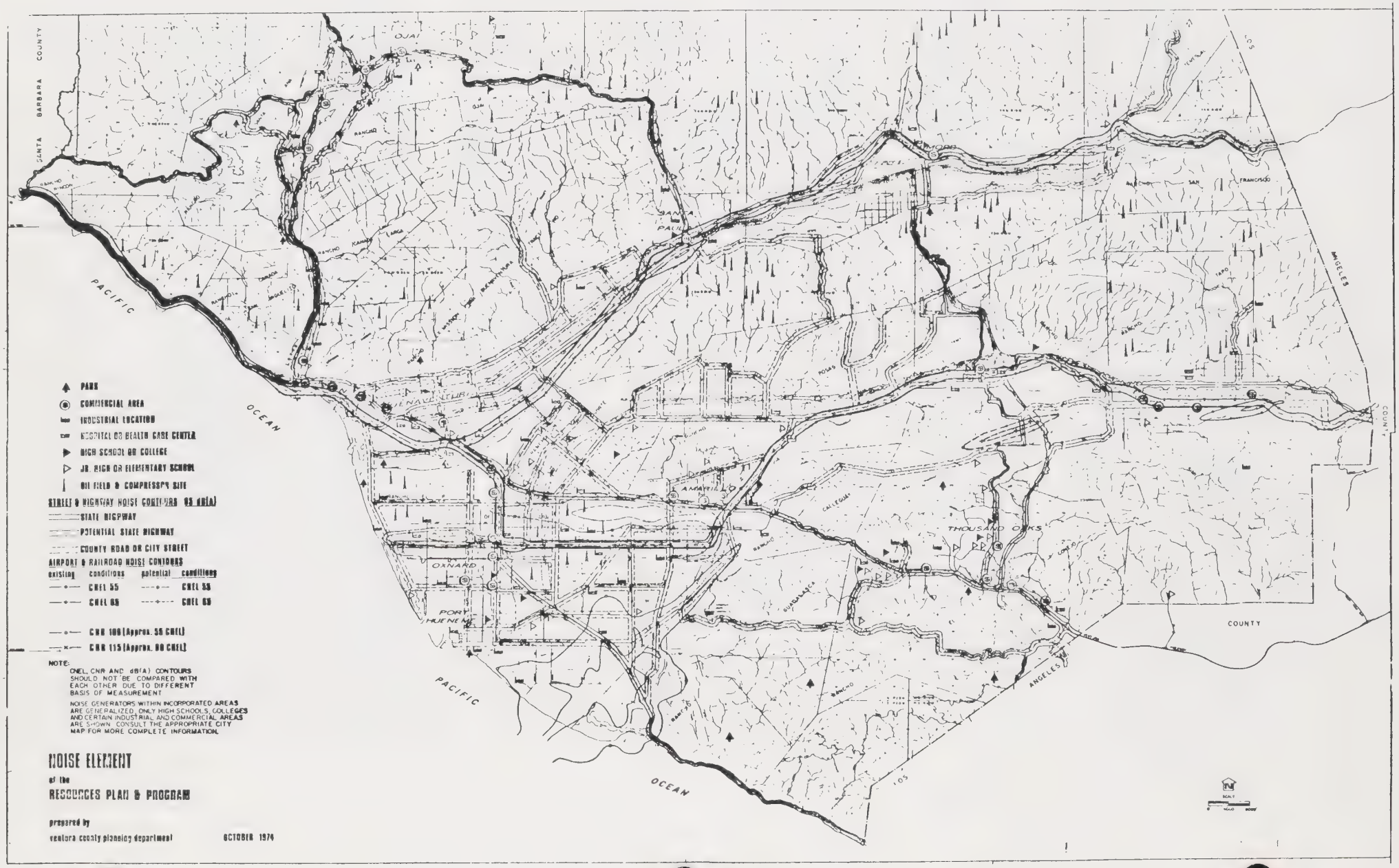
The reliability of the information used in plotting contours is less than ideal because of the number of sources relied upon for information, the various evaluation schemes in which the information appeared, and the probable lack of consistent measuring techniques. Such a situation is unavoidable, but should not in any way detract from the use of the plotted contours as analysis or study zones. Within these zoned further noise investigations should be undertaken to determine the exact nature of the source in question.

Besides their reliability, the appropriateness of the contours for land use decisions is also in question. A perfect example of this is the use of the average peak level of a diesel truck as a basis for traffic noises. Such a method does not take into account volumes or mixes and, consequently, depicts Highway 150 as being as noise as Highway 101. None of the contours take into account noise barriers such as buildings, or the noises generated by sources other than those being represented. Finally, none of the contours consider noise levels over a 24-hour levels, but neither accounts for both of these noise factors.

The spot measurements taken at selected locations and addressed more fully in the Local Inventory chapter, represent a few of the actual measurements taken in the county. However, they were not extensive enough to warrant their use as anything but general indicators.

In general, there is very little hard, field-generated data on noise for this county. What appears in this Element represents the best available information; information which should not be used for land use decisions but rather as a general guide for more detailed studies.


NOISE ELEMENT
of the
RESOURCES PLAN & PROGRAM
INDUSTRIAL SITE
NOISE CONTOURS ~ 65 dB(A)
STATE HIGHWAY
ventura county planning department
october, 1974
MAP OF
THE NORTH HALF OF
VENTURA COUNTY
CALIFORNIA
GENERAL COUNTY MAP
PRIVATE LANDS WITHIN NATIONAL FOREST
KERN
COUNTY
SANTA
BARBARA
COUNTY
LOS
ANGELES
COUNTY


SANTA BARBARA COUNTY
PACIFIC
OCEAN
OJAI
SAN PAUL
SAN FRANCISCO
LOS ANGELES COUNTY
OXNARD
PORT HUENEME
AMARILLO
THOUSAND OAKS
CALLEGUAS
GUADALASCA
PARK
COMMERCIAL AREA
INDUSTRIAL LOCATION
HOSPITAL OR HEALTH CARE CENTER
HIGH SCHOOL OR COLLEGE
JR. HIGH OR ELEMENTARY SCHOOL
OIL FIELD & COMPRESSOR SITE
STREET & HIGHWAY NOISE CONTOURS 65 dB(A)
STATE HIGHWAY
POTENTIAL STATE HIGHWAY
COUNTY ROAD OR CITY STREET
AIRPORT & RAILROAD NOISE CONTOURS
existing conditions
potential conditions
CNEL 55
CNEL 55
CNEL 65
CNEL 65
CNR 100 (Approx. 55 CNEL)
CNR 115 (Approx. 60 CNEL)
NOTE:
CNEL, CNR AND dB(A) CONTOURS SHOULD NOT BE COMPARED WITH EACH OTHER DUE TO DIFFERENT BASIS OF MEASUREMENT.
NOISE GENERATORS WITHIN INCORPORATED AREAS ARE GENERALIZED. ONLY HIGH SCHOOLS, COLLEGES AND CERTAIN INDUSTRIAL AND COMMERCIAL AREAS ARE SHOWN. CONSULT THE APPROPRIATE CITY MAP FOR MORE COMPLETE INFORMATION.
NOISE ELEMENT
of the
RESOURCES PLAN & PROGRAM
prepared by
ventura county planning department
OCTOBER 1974

LOCAL INVENTORY

The previous inventory of noise sources and the resources they impact was general in nature and attempted to provide a county-wide view of the noise problem. This chapter will discuss in greater detail the potential noise sources and recipients at the local level. Reference should be made to the noise sources maps.

The common potential noise sources and the resources they impact are listed on Illustration 6.1. In some cases sources were listed which are located outside Ventura's jurisdiciton, but which affect areas within the city. The Mandalay Generating Plant is an example.

Potential impacts of resources by noise sources was inventoried by first identifying suspected and known noise sources; second, designating noise contour levels or study zones around each prospective source; and finally by identifying the resources found within these contours or zones.

The potential noise sources inventoried were selected because their consideration was required by State law, or because complaints and past experience indicated they were likely noise sources. It should be noted that relying on complaints to direct investigations will result in an incomplete study of the problem because complaints are usually lodged only in the most extreme cases. The identification of potential industrial noise sources relied upon an inventory of county industry (by Standard Industrial Code-SIC) conducted by the California Human Resources Development Department. Supplemental data was supplied by the Ventura City Planning Department.

The noise contour levels around various sources vary considerably and are discussed in detail in the General Inventory of Noise Sources chapter. The contours around highways are set at a peak noise level of 65 dB(A) while the contours around the Southern Pacific Railroad were set at 55 CNEL.

No contours were drawn around spot sources because of the difficulty of plotting them at the map scales used, and because of their tentative nature. Study or analysis zones were established around such sources at a distance of 1,000 feet which is a sufficient distance to reduce the sources noise level by 35 decibels. For certain extreme noise sources, greater zones were established (such as Mandalay Generating Plant).

Another aspect of the local inventory involved a series of spot measurements taken at various locations throughout the city, see Illustration 6.2. These ten minute readings were taken by the County Environmental Health Department and reflect the ambient noise level (L90) and intrusive noise level (L10) and the median noise level (L50). While the measurements are statistically significant enough to represent a one hour measurement, they should only be considered a cursory assessment of the situation.

Despite the uncertainty of the noise information presented in this chapter, it does indicate locations which could be investigated more thoroughly. Such investigations might be undertaken as a part of the EIR process or staff review of a project.

Illustration 6.1

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Industry										
Ventura Ave & Dent Drive		X		De Anza J.H.					X	
Ojai Fwy Complex	X	X		E.P. Foster					X	
Ramona & Ventura Avenue	X	X					The Elms		X	
Ramona & SPRR	X	X	Westpark	Sheridan Way					X	
Olive & Mission	X	X	Westpark						X	
Garden	X	X	Grant						X	
Rea Way									X	
W. Main	X	X							X	
Junipero	X		Mission	Holy Corss					X	
Paseo de Plaza		X							X	
Fir Street	X		Plaza						X	
Seaward	X	X							X	

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Industry (Cont.)										
Marina									X	
Collins Rd. Comp	X	X							X	
Palma Street									X	
Walker Street									X	
Frontage Road	X	X							X	
Ventura Road									X	
Bristol										
Saticoy	X		Saticoy Public Golf				Saticoy Rest Home		X	
N. Wells Road	X									
*Mandalay Power Plant (1/2 mile analysis zone)			Olivas Park Golf Course							
*Regional Noise Generator										
Commercial										
N. Wells Road	X	X								
Saticoy	X									X
E. Telegraph Rd.	X									
E. Telephone Rd.	X	X								
Telegraph & Kimball	X			Juanamaria						
Telegraph & Victoria	X	X		Balboa Buena						

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Commercial (Cont.)										
Victoria & Telephone	X									
Victoria & 8th	X	X		Montalvo						
Victoria & 101	X	X		Montalvo						X
Bristol & Scholle	X	X								X
Sherwin & R R	X	X								
Frontage Road	X	X								X
Leland Street										X
101 & Copeland		X								X
East of College Telegraph	X	X		Ventura CC		Ventura Conval.	Mound Ventura Town-house			
Telegraph & Ashwood	X	X		Ventura CC		Calif. Conval.				
Collins Road		X								X
Buenaventura Shopping Area	X	X	Anacapa	Anacapa JH El Camino Reynolds St. Bona-venture Our Lady Of The Assump.		Calif. Conval.				
Hospital Complex	X	X		St. Bona-venture Our Lady Loma Vista	Comm. Memorial County General			Ventura Co. Mental Health		
Five Points	X	X		St. Bona-venture Our Lady	Comm. Memorial					

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Commercial (Cont.)										
Five Points (Continued)				Will Rodgers						
Main St. Strip	X	X	Cemetary	Ventura H.S. Ventura Col Of Law Washington Cabrillo Mar Vista Will Rodgers	Comm. Memorial		Santa Clara Rest Home	Ventura Co. Main St Clinic		
Thompson St. Strip	X	X	Plaza	Washington Will Rodgers Cabrillo Mar Vista			Santa Clara Rest Home	Ventura Co. Main St Clinic	X	
Channel Street	X	X							X	
Marina	X	X								
Pierpont	X	X	Ventura St Beach							
Sanjon	X		Ventura St Beach							
CBD	X	X	Ventura St Beach Plaza Pk Grant Pk Mission Fair-grounds	Holy Cross						X
W. Main	X		Westpark							X
S. Ventura Ave.	X	X	Westpark Grant Pk Mission	Sheridan Way Holy Corss						X
Ventura Ave Strip	X	X	Grant Pk	Foster			The Elms			X

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Commercial (Cont.)										
N. Ventura Ave. Area	X	X		Foster De Anza						X
Ventura Ave. & Borrell	X			De Anza						X
Ventura Ave. & Barry	X	X		De Anza						X
2600 Ventura Ave.	X	X		Avenue						X
Schools										
Avenue	X	X							X	X
Blanche Reynolds	X	X							X	X
El Camino	X	X		Anacapa					X	X
Elmhurst	X									
Foster	X	X							X	X
Holy Cross	X	X	Grant Pk Mission						X	
Juanamaria	X								X	
Junipero Serra	X									
Loma Vista	X	X			County General Hosp.			Ventura Co. Mental Health	X	
Montalvo	X	X							X	
Mound	X	X								
Our Lady Of Assumption	X	X		St. Bona-venture	County General Hosp.				X	
Pierpont	X	X		Balboa						
Poinsetta	X									

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Schools (Continued)										
Saticoy	X	X	Saticoy Golf Course							
Sheridan Way	X	X	Westpark						X	X
Washington	X	X		Cabrillo					X	
Will Rodgers	X	X							X	
Anacapa Jr High	X	X	Anacapa						X	
Balboa Jr High	X	X		Mound					X	
Cabrillo Jr High	X	X	Cemetary	Washington Mar Vista					X	
De Anza Jr High	X	X							X	
Buena High	X	X					Mound		X	
Colston High	X	X			County General Hosp.			Ventura Co. Mental Health		
Mar Vista	X	X	Cemetary				Santa Clara	Ventura Main St. St. Clinic	X	
St. Bonaventure	X	X		Our Lady	County General Hosp. Comm. Memorial			Ventura Co. Health Care	X	
Ventura High	X	X		Ventura Col Of Law					X	
Ventura Community College	X	X				Ventura Conval. Calif. Conval.	Ventura Towne-house		X	

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted									
	SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Schools (Continued)										
Ventura College Of Law	X	X		Ventura High						
Parks										
Saticoy Golf Course	X	X		Saticoy					X	
Ventura Municipal									X	X
Arroyo Verde	X									
Olivas Municipal										X
Anacapa	X	X		Anacapa El Camino					X	
Cemetary	X	X		Mar Vista			Santa Clara	Ventura Co. Main St. Clinic	X	
Plaza Park	X	X							X	
Mission Park	X	X		Holy Cross					X	X
Grant Park	X	X		Holy Cross					X	X
County Fairground	X	X							X	X
Westpark	X	X		Sheridan Way					X	X
Streets										
S.H. 33	X	X	West-park	Sheridan Way					X	X
Ventura Ave.	X	X	Grant	Avenue Foster			The Elms		X	X
S.H. 101	X	X	Fair-grounds Ventura Beach						X	X

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted: SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Streets (Continued)										
Poli	X	X	Grant Pk Cemetary	Holy Cross Ventura High Ventura Col. Of Law				Main St. Clinic	X	
Main	X	X	Mission Plaza Pk Cemetary	Holy Cross Mar Vista Ventura High Washington	Comm. Memorial		Santa Clara	Ventura Co. Main St Clinic	X	X
Thompson	X	X	Mission Plaza Pk	Will Rodgers Cabrillo			Santa Clara		X	X
Seaward	X	X		Ventura High					X	X
Foothill	X	X	Arroyo Verde	Colston High Poinsetta						X
Loma Vista	X	X		Loma Vista Ventura CC	Comm. Memorial County General Hosp.	Calif. Conval.		Ventura Co Mental Health	X	
Telegraph	X	X		St. Bona-venture Our Lady Ventura CC Buena High Juanamaria		Ventura Conval.	Ventura Towne-house Mound Guest Home		X	
S.H. 126	X	X		Elmhurst Mound Saticoy						
Telephone	X	X	Saticoy Golf Course						X	
Mills Road	X	X		Anacapa Loma Vista					X	

Illustration 6.1 (Continued)

SAN BUENAVENTURA POTENTIAL NOISE SOURCES	Resources Impacted									
	SINGLE FAMILY	MULTI-FAMILY	PARKS	SCHOOLS	HOSPITALS	CONVALESCENT	REST HOME	MENTAL CARE	COMMERCIAL	INDUSTRIAL
Streets (Continued)										
Ashwood	X	X		Ventura CC		Calif. Conval.			X	
Victoria	X	X		Poinsetta Buena					X	
Wells Road	X								X	
S.H. 118	X		Saticoy Golf Course						X	X
Harbor Blvd.	X	X							X	X
Olivas Park Dr.			Olivas Municipal GC Ventura Municipal GC							X
Railroad										
Southern Pacific	X	X	Fairgrounds Ventura Beach	Cabrillo Serra			Saticoy Rest Home		X	X

Illustration 6.2
Spot Noise Measurements

Time of Day	Location	Source	L_{90}	L_{50}	L_{10}
3:00 p.m.	Mills Road & Main Street	Traffic	62	67	73
2:30 p.m.	Buenaventura Shopping Center	Traffic	55	58	73
1:45 p.m.	Rocklite & Ventura Ave.	Traffic	57	64	80
12:10 p.m.	Washington School (MacMillian St.)	Traffic/ Children	50	61	75

Based upon an analysis of the preceding information, we find that the following noise generators impact a variety of noise sensitive uses within the City of San Buenaventura.

Industrial

All industrial areas appear to create conflicts with other uses, particularly in the Ventura Avenue area. Areas where industrial uses cause minimal conflict exist west of the city and near Palm Street. Residential uses appear to be potentially impacted the most by industrial uses due to possible plant operations and heavy equipment associated with such a plant.

Commercial

Commercial areas in San Buenaventura operate close to noise sensitive areas or facilities. The traffic they attract or machinery associated with the commercial use may impact health care facilities along with parks, schools and residential areas. The Buenaventura Shopping area, hosptial complex and Main Street strip commercial in particular, could impact surrounding noise sensitive areas and facilities.

Schools

From the city noise map, it appears that schools tend to locate in the center of residential areas. The daytime erratic noises of children playing or traffic attracted to the schools, may impact all the types of noise sensitive areas or facilities inventoried.

Parks

Smaller parks have developed within the urban area while the larger traffic generating parks appear to be located on the periphery of the City. The smaller parks are less of an impact to the community due to the infrequency of use and lower sould levels generated. Due to the similarity in the types of noise generated, parks may cause the same type of impact as do schools on residential, commercial, industrial areas, health care facilities and schools.

Roads

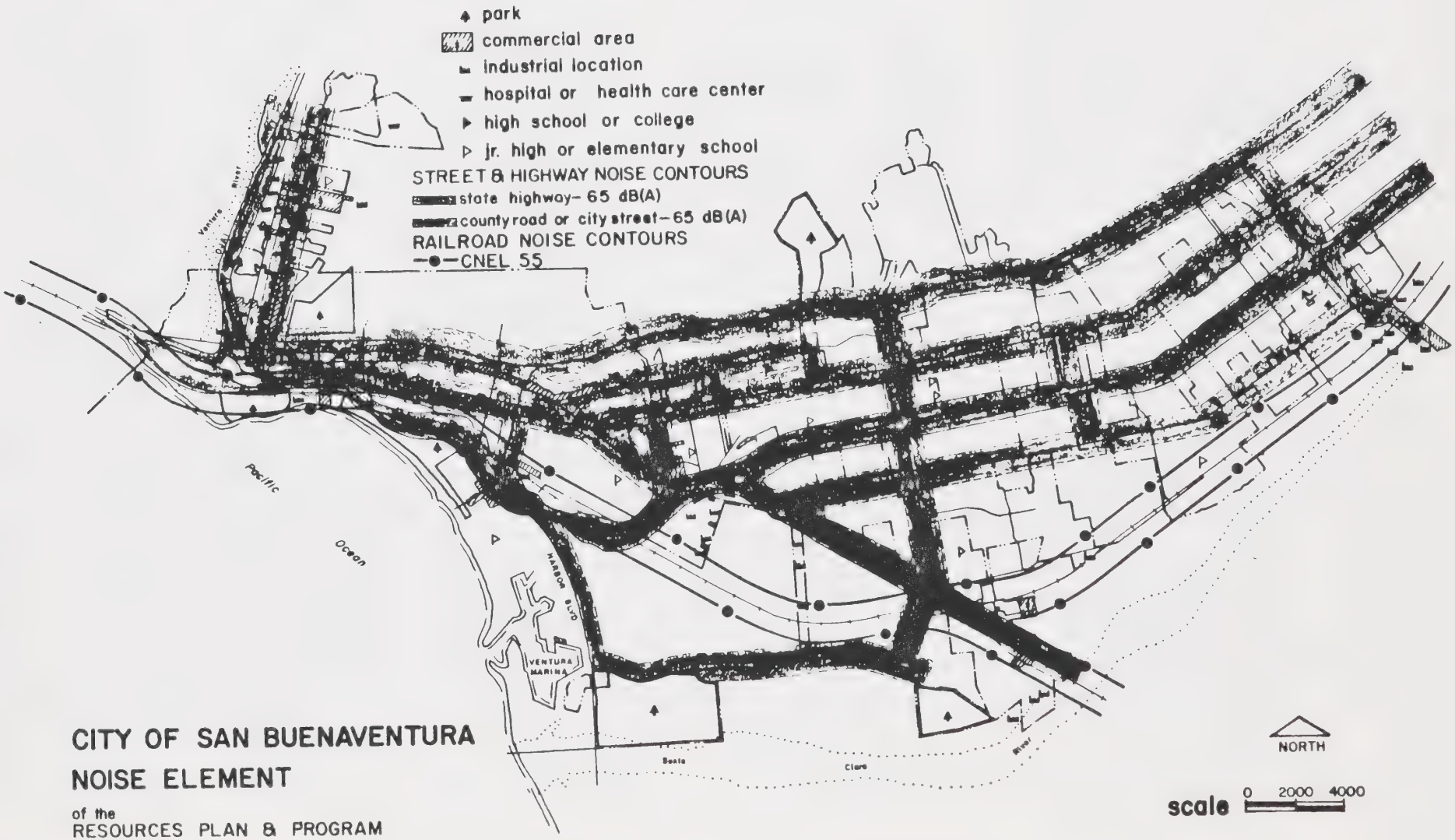
Roads play a major role in establishing a community's background or residual noise level in addition to causing intensive noises. Because many resources are oriented to this mode of transportation, all the types of resources inventoried may be impacted by roadway noise.

Railroad

It appears that the Southern Pacific Railroad may impact residential, commercial and industrial areas as well as two parks, two schools and a health care facility.

Conclusion

The pervasiveness of traffic noise may mean that it is the largest source in the city. The possible high noise levels of industrial and railroad noises may make those two sources the second and third largest source. This does not mean that railroads may be a less of a problem than roads. Each area of the city must consider their particular noise problem and take the appropriate steps to alleviate it.



CITY OF SAN BUENAVENTURA
NOISE ELEMENT

of the
RESOURCES PLAN & PROGRAM

prepared by
ventura county planning department

october, 1974

The responsibility for the control of noise is divided among various levels of government and in turn divided among various agencies and departments at each governmental level. Illustration 7.1 outlines the general responsibilities among levels of governments for noise in general. Illustration 7.2 summarizes the noise control responsibilities of the agencies and departments at each level of government. The remaining tables summarize various State and Federal laws and standards.

Local agencies have several alternatives for the control of various noise generators. These include: enforcement of existing state and local laws, creation of local ordinances and policies, adoption of Federal and State Noise standards, and the implementation of various land use and site planning techniques based on State and Federal planning guidelines.

Illustrations 7.3 to 7.5 summarize the various state laws relative to noise levels of vehicles, boats and aircraft, which local agencies and building departments can immediately enforce. In addition to State laws, local nuisance ordinances relating to disturbing the peace and animal control can be enforced by local law enforcement agencies and the County Department of Animal Control. Nuisance laws ideally supplement noise ordinances by providing controls over community noises which are too sporadic to be included in a noise ordinance.

The second alternative mentioned is the creation of new ordinances. Generally, this includes the passage of some sort of noise ordinance. In contrast to nuisance ordinances, a noise ordinance attempts to provide noise level standards for reoccuring noise generators or land use types. An ordinance should contain a well defined, objective noise standard for various land uses, based on an easy to calculate noise evaluation scheme, maximum noise levels, consideration for impulse sounds, appropriate reference pressure, and reference to a measurement procedure. The Technical Appendix contains two examples of such noise ordinances.

A local ordinance could also extend to the enforcement of Federal and State product standards, to those products once purchased. According to the Noise Control Act of 1972, the United States Environmental Protection Agency must establish noise levels on new products including construction, transportation, electric/electronic equipment and any motor or engine. These product noise levels could be adopted as a part of a noise ordinance by local entities to insure control over specific noise sources which might otherwise be difficult to control. Illustrations 7.6 and 7.7 are State product standards which may apply.

Illustration 7.1
Summary Analysis of Jurisdictional Responsibility in Noise Control

	AIRCRAFT	MOTOR VEHICLE	GENERAL
FEDERAL	- NCA 1972, EPA to propose noise control regulations for aircraft, amends S 611 FAA Act of 1958, asserts that FAA and EPA pre-empt local control (U.S.C. 1973)	- Federal Aid Highways Act, P.O. 91-605 directs Secretary of Transportation to make standards for highway noise control; promulgated in PPM 90-2 of February, 1973. - NCA 1972, regulates noise from surface carriers and motor vehicles engaged in interstate commerce.	- Walsh Healy Act applies noise standards to Fed. contracts. - O.S.H.A. applies noise standards to businesses affecting interstate commerce. - NCA 1972 gives EPA authority to prescribe standards for new products: + construction equipment + transportation equipment + any motor or engine + electric/electronic equipment; also label noise emitting or noise abating equipment. - National Envir. Policy Act allows H.U.D. to approve or disapprove H.U.D. assisted projects on basis of noise; promulgated in circular 1390.2.
STATE (California)	- Subchapter 6. Noise standards, Department of Aeronautics. Regulate noise for all civil aircraft operations to the extent not already limited by federal law.	- Motor Vehicle Code regulates noise limits for new vehicles and all motor vehicle operation. - Cal. Streets and Highways Code S 216 abates noise within schools near freeways (50 dbA Interior) - Harbor and Navigation Code S2:654:05 regulates noise emission from motorboats in or upon inland waters.	- Division of Industrial Safety controls industrial noise. Calif. Administrative Code S5095. - S 415 Penal Code prohibits loud and unusual noise that distrubs the peace. - Envir. Quality Act encourages local agencies to control environmental quality. - Health and Safety Code S.24180-81 establish State office of Noise Control to provide technical assistance to local governments.
LOCAL	- Airport authority as proprietor may impose curfew. (Issue has yet to be resolved in courts.) - Subchapter 6 requires County to determine airports to be monitored and provide quarterly reports. - Public Utilities Code S 21670 requires county for form Airport Land Use Commission to formulate comprehensive land use in airport influence area.	- Local jurisdiction may enact regulations for off-highway motor vehicles, refuse vehicles and sound trucks. - May regulate the use of roads and highways based on noise considerations. - Enforce State Motor Vehicle Regulations.	- Control compatability by land use If not in conflict with State general laws may enact nuisance laws and noise control ordinances to control: + construction noise + amplified sound + fixed noise sources + other noise sources whose control is not pre-empted by State or Federal government. - Chapter 35 of U.B.C. and Chapter 25 of State Housing land allows local building departments to require the use of sound attenuating material for non-single family structures occupancies in particular areas.

Source: Adopted from County of San Diego, April 1974.

Illustration 7.2

Agency Responsibility for Noise

Federal	General Policies	Hwys. Noise Abatement	Aviation Noise Abatement	Airport Noise Control	Occupational Noise Abatement	Constr. Site Noise	Constr. Noise Abatement Acoustical Char. - Bldg.	Building Siting	Manufacture Product Noise Abatement	Land Use Noise Abatement	Complaints	Research
Fed. E.P.A.	x								x			x
Dept. of Defense	x											
Air Force			x		x							
Dept. of Navy					x							
Dept. of Army						x						
Fed. Highway Admin.		x										
Fed. Aviation Admin.			x									x
Dept. of Labor					x	x						
Dept. of Interior					x							
Atomic Energy Com.					x							
Gen. Services Ad.						x	x					
Dept. of Housing & Urban Development							x					x
Dept. of Commerce					x				x			x
Nat'l Institute of Occupational Safety & Health (HEW)					x							x

Illustration 7.2
(cont.)

State	General Policies	Hwys. Noise Abatement	Aviation Noise Abatement	Airport Noise Control	Occupational Noise Abatement	Constr. Site Noise	Constr. Noise Abatement Acoustical Char. - Bldg.	Building Siting	Manufacture Product Noise Abatement	Land Use Noise Abatement	Complaints	Research
State Office of Planning & Research	x											
Dept. of Health	x				x							x
Dept. of Aeronautics			x	x		x						
Dept. of Calif. Highway Patrol		x										
CALTRANS		x										x
State Div. of Industrial Safety					x	x						
Dept. of Human Resources Development							x					
Local												
Councils and Board of Supervisors	x											
Local Planning Depts.								x		x	x	x
Environmental Health					x						x	x
Building & Safety							x	x				
Public Works		x					x	x				
Dept. of Airports & Harbors				x								
Police & Sheriff											x	

Source: Ventura County Environmental Health "Distribution List"

* Public Buildings Only

Local jurisdictions could also adopt Federal and State regulations and guidelines for local development. Four Federal and State regulations which are of particular importance are summarized in illustrations 7.8 to 7.10. This includes federally adopted H.U.D. and Department of Transportation guidelines as well as state regulations concerning school noise and appropriate land uses surrounding airports.

The H.U.D. noise guidelines are used to help determine whether projects applying for H.U.D. or F.H.A. loans are qualified on the basis of noise. The Department of Transportation has established noise standards and procedures (illustration 7.8) to determine if particular roadways can qualify for federally assisted noise abatement projects. State laws also establish standards estimating adverse impacts of noise on various land uses. These standards could be adopted as policy or ordinance by local entities locating the appropriate land uses near noise sources.

The advantage of using these standards, particularly the H.U.D. standards, is that they may have greater acceptability due to greater resources available to State and Federal agencies.

The problem with these standards is that they are inconsistent, individually they do not adequately measure the noise conditions, and they may be too high to accurately reflect community desires. For example, the Department of Transportation standards can be considerably lower than H.U.D. standards interpreted on an L_{10} basis: 80 dB(A) for H.U.D. compared to a maximum of 75 dB(A) for D.O.T. Also, although the D.O.T. standards consider peaks, they do not provide a time history standard in order to consider nighttime impacts or community response. Finally, the noise levels standard of an L_{10} of 70 dB(A) may not be acceptable to the people of Ventura County for residential areas.

Illustration 7.3
Noise Limits For On-Highway Motor Vehicles
State of California

	On Streets with a Grade of 1% or higher		On Streets with a Grade not exceeding 1%
	Speed Limit of 35 mph or less	Speed Limit of more than 35 mph	Speed Limit of 35 mph or less
1) Any motor vehicle with a manufacturer's gross vehicle weight rating of 6,000 pounds or more and any combination of vehicles towed by such motor vehicle:			
a) Before Jan. 1, 1973	88 dB(A)	90dB(A)	
b) On and after Jan. 1, 1973	86 dB(A)	90dB(A)	82 dB(A)
2) Any motorcyle other than a motor-driven cycle	82 dB(A)	86dB(A)	77 dB(A)
3) Any other motor vehicle and any combination of vehicles towed by such motor vehicle	76 dB(A)	82dB(A)	74 dB(A)

SOURCE: Section 23130, 23130.5, California Motor Vehicle Code.

Illustration 7.4

Noise Limits For Motorboats In Or Upon Inland Waters

(a) For engines manufactured on or after January 1, 1974, and before January 1, 1976, a noise level of 86 db(A) measured at a distance of 50 feet from the motorboat.

(b) For engines manufactured on or after January 1, 1976, or before January 1, 1978, a noise level of 84 db(A) measured at a distance of 50 feet from the motorboat.

(c) For engines manufactured on or after January 1, 1978, a noise level of 82 db(A) measured at a distance of 50 feet from the motorboat.

SOURCE: Section 654.05, California Harbor and Navigation Code

Illustration 7.5

Sound Transmission Class (S.T.C.) And
Impact Insulation Class (I.I.C.)
For Non-Single Family Buildings For Human Occupancy

The noise standards below apply to all new buildings intended for human occupancy except detached single family dwellings that are intended to be built within a CNEL 60 dB noise environment. These standards are to be enforced by local building departments.

Interior Noise Levels must not exceed an annual average CNEL of 45 dB and the developer must provide an acoustical study to demonstrate that the structure meets the interior noise level if located within a known or predicted CNEL of 60 dB.

	STC rated/field-tested	IIC rated/field-tested
Floor-Ceiling Assemblies	50/45	50/45
Wall Assemblies	50/45	50/45
Dwelling Unit Entrance Doors From Interior Corridors	30	-----

SOURCES: U.B.C., Chapter 35, and California Administrative Code, Title 25, Article 4, Chapter 1.

Illustration 7.6

Noise Limits For New Off Highway Motor Vehicles State Of California

(a) *** No Person shall sell or offer for sale a new off-highway motor vehicle subject to identification which produces a maximum noise exceeding the following noise limit at a distance of 50 feet from the center-line of travel under test procedures established by the Department of the California Highway Patrol:

(1) Any such vehicle manufactured on or after January 1, 1972, and before January 1, 1973 ..... 92 db(A)

(2) Any such behicle manufactured on or after January 1, 1973, and before January 1, 1975 ..... 88 db(A)

(3) Any such vehicle manufactured on or after January 1, 1975 ..... 86 db(A)

(b) Test procedures for compliance with this section shall be established by the Department of the California Highway Patrol, taking into consideration the test procedures of the Society of Automotive Engineers.

SOURCE: Section 38280, California Motor Vehicle Code

Illustration 7.7

Noise Limits For New Motor Vehicles
State Of California

(a) No person shall sell or offer for sale a new motor vehicle, except an off-highway motor vehicle subject to identification as defined in Section 38012, which produces a maximum noise exceeding the following noise limit at a distance of 50 feet from the centerline of travel under test procedures established by the department:

(1) Any motorcycle manufactured before 1970 .....92 db(A)

(2) Any motorcycle, other than a motor-driven cycle, manufactured after 1969, and before 1973 .....88 db(A)

(3) Any motorcycle, other than a motor-driven cycle, manufactured after 1972, and before 1975 .....86 db(A)

(4) Any motorcycle, other than a motor-driven cycle, manufactured after 1974, and before 1978 .....80 db(A)

(5) Any motorcycle, other than a motor-driven cycle, manufactured after 1977, and before 1988 .....75 db(A)

(6) Any motorcycle, other than a motor-driven cycle, manufactured after 1987 ...70 db(A)

(7) Any snowmobile manufactured after 1972...82 db(A)

(8) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1967, and before 1973 .....88 db(A)

(9) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1972, and before 1975 .....86 db(A)

(10) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1974, and before 1978 .....83 db(A)

Illustration 7.7 Continued

(11) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1977, and before 1988 .....80 db(A)

(12) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1987.....70 db(A)

(13) Any other motor vehicle manufactured after 1967, and before 1973 .....86 db(A)

(14) Any other motor vehicle manufactured after 1972, and before 1975 .....84 db(A)

(15) Any other motor vehicle manufactured after 1974, and before 1978 .....80 db(A)

(16) Any other motor vehicle manufactured after 1977, and before 1988.....75 db(A)

(17) Any other motor vehicle manufactured after 1987 .....70 db(A)

(b) Test procedures for compliance with this section shall be established by the department, taking into consideration the test procedures of the Society of Automotive Engineers.

SOURCE: Section 27160, California Motor Vehicle Code

Illustration 7.8
Department of Transportation Design Noise Standards

Land Use Category	Design Noise Level - L_{10}	Description of Land Use Category
A	60 dB(A)	Tracts of lands in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualitites of serenity and quiet.
B	70 dB(A) (Exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	75 dB(A) (Exterior)	Developed lands, properties or activities not included in categories A and B above.
D	--	For requirements on undeveloped lands see paragraphs 5a(5) and (6), this PPM.
E	55 dB(A) (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

SOURCE: Code of Federal Regulations Chapter 1, Title 23, Part 772.

Illustration 7.9
Department of Housing and Urban Development
Noise Standards

	Exterior (New Construction Sites)	Interior (New and Rehabilitated Construction)
Unacceptable	-Exceeds 80 dB(A) 60 minutes per 24 hours	
	-Exceeds 75 dB(A) 8 hours per 24 hours	-STC less than 45
Discretionary-Normally Unacceptable	-Exceeds 65 dB(A) 8 hours per 24 hours	
	-Loud repetitive sounds	
Discretionary-Normally Acceptable	-Not exceed 65 dB(A) more than 8 hours per 24 hours	
Acceptable	-Not exceed 45 dB(A) more than 30 minutes per 24 hours	-Sleeping Quarters
		-Not exceed 55 dB(A) for more than an accumulation of 60 minutes per any 24 hour period, and
		-Not exceed 45 dB(A) for more than 30 minutes during night-time sleeping hours from 11 p.m. to 7 a.m.
		-Not exceed 45 dB(A) for more than an accumulation of eight hours in any 24-hour day

SOURCE: HUD circular 1390.2

Illustration 7.10
State Noise Level Standards for various Land Use

Regulation	Responsible Agency	Directed Towards	Standard	Function
Amendment to Section 216, Streets and Highway Code	CALTRANS	Schools	Interior level 50 dB(A) at existing schools near existing or planned freeways.	Criteria to determine need for acoustical treatment
Subchapter 6, Title 4 of Business Regulations for Cal. Administrative Code	Dept. of Aero	-Agriculture -Airport property -Industrial property -Commercial property -Property subject to an aviation easement for noise -Zoned open space -High rise apartments that provides no greater interior noise levels than CNEL of 45 dB(A)	Exterior level of CNEL of 70 dB(A) until December 31, 1985 and 65 dB(A) thereafter	Land uses which are compatible within the noise impact boundary of a CNEL of 70 dB(A) until December 31, 1985 and 65 dB(A) afterwards.

SOURCES: Chapter 541 of State Statue and Code Amendments and Subchapters 1, Title 4 of the Business Regulations for California Administrative Code

GENERAL FINDINGS

PROBABILITY OF OCCURRENCE: (see General Inventory of Noise)

1. Noise is directly associated with human activity. In Ventura County, noise is primarily a function of traffic, machinery and airports. As traffic and industrialization increase in the County, the potential for higher noise levels increases.

2. From a historical perspective, noise in the County is on the increase, but the rate varies from area to area.

SEVERITY OF THE HAZARD

1. In general, noise may cause psychological, sociological, physiological, auditory, economic and structural primary and secondary impacts. However, at this time, the levels at which these effects may occur has not been sufficiently documented to make concludsions. (see General Effects of Noise)

2. Although community noise levels in the County are not known, nor the intensity at which adverse impacts occur, spot measurements indicate that there is a high probability that noise within the County does create adverse impacts. (see General Effects of Noise and General Inventory of Noise)

3. The significance of these noise impacts may be assessed by social and economic costs; physical costs, the costs of annoyance; human pain and suffering; by evaluating costs involved with the secondary effects of noise; and by the number of people's complaints. (see General Effects of Noise)

RESOURCES EFFECTED

1. Noise may cause adverse impacts to people, wild and farm life, and structures close enough to the noise source.

2. Land uses which may be particularly sensitive to noise due to annoyance or health factors would include:

   Residential Areas (single-family, apartments, hotels, motels)

   Educational and health-related facilities (schools, libraries, hospitals, rest homes, mental care facilities)

   Certain Industrial facilities (research institutions)

   Certain recreational and entertainment facilities (parks for passive activities, concert halls, motion picture theatres, legitimate theatres)

   Churches

3. Land uses which may be less sensitive to noise may include:

   Commercial facilities (e.g., warehousing, general offices, stores)

   Industrial facilities (e.g., light and heavy industry)

   Certain recreational and entertainment facilities (e.g., playgrounds, stadiums, gymnasiums)

NATURE OF THE INFORMATION (see General Inventory of Noise)

1. The data produced on the various transportation facilities are calculated predictors of the noise environment. They do not reflect the actual noise environment of existing facilities nor do they provide enough information for planning purposes for locating future facilities.

2. No noise data has been received from the Southern Pacific Railroad Company.

3. Noise data reported by different agencies should not be compared unless the two measurement schemes are found to be equivalent.

4. No conclusions on historical comparisons can be made about any community due to the insufficient number and short duration of measurements made.

5. Airport noise data which is expressed in the same schemes were not developed by the same methodology.

NOISE SOURCES (see General Inventory of Noise)

1. On a generalized basis, motor vehicles, as a group, are the most pervasive contributors to urban noise, while aircraft and certain high intensity industrial noise generators may produce the most aggravated community annoyance reactions.

2. Other significant noise sources are factories, railroads, powered gardening equipment, stereo sound amplifiers, musical instruments, power tools, and air conditioners.

OTHER SIGNIFICANT FINDINGS

1. Noise is unwanted sound. (see General Description of noise)

2. Noise is measured in a relative, logarithmic way, which may represent sound pressure or sound power levels and is usually expressed in units of decibels. (see General Description of Noise)

3. The human ear does not respond equally to all frequencies of sound, and has no response below 20 hertz or above 20,000 hertz. The ear is most sensitive with frequencies ranging from 1,000 to 8,000 hertz. (see General Description of Noise)

4. The five major classes of community noise are: steady wide band, steady narrow band, impulse, repeated impulse, and intermittent noise. (see General Description of Noise)

5. Two adjacent noise sources which by themselves may not cause a serious impact, may cause an impact due to proximity to each other. This phenomena may be especially significant in urban areas where multiple or "complex" sources exist. Contours within this report do not reflect this potential. (Two source concepts discussed in General Description of Noise)

6. Several factors effect noise radiation: distance, barriers, weather, etc. (see General Description of Noise)

7. There are a variety of measurement evaluation schemes which a jurisdiction can use. These schemes mold measured data into a usable form, which varies depending on the purpose the data is to be used for. The measurement evaluation schemes are categorized as: psychoacoustic, statistical level and time history. (see Noise Evaluation Schemes)

8. The ideal evaluation scheme should differentiate between day and nighttime noise, seasonal changes, and tonal qualities. Measurements should be of sufficient duration to be representative of a 24-hour day. Peak levels should be considered. The scheme should be relatively simple to calculate and the results should be representative of community response. (see Noise Evluation Schemes)

9. Division of responsibility for noise control is divided among Federal, State, and local governments. (see Management of Noise)

10. Federal and State responsibility for noise control is divided among 28 different agencies. (see Management of Noise)

11. Responsibility for responding to noise complaints in Ventura County is shared by the sheriff's office, city police departments, city and county planning departments, County departments of Animal Control, and Environmental Health. (see Management of Noise)

12. The noise problem does not stop at each jurisdiction's boundary, but may continue on to impact resources in other jurisdictions, as evidenced by the four possible regional noise generators of: Ormand Beach and Mandalay Power Generating plants, Rocketdyne test facility, and the drop forge facility on Arcturus Street in Oxnard.

SPECIFIC FINDINGS (See Local Inventory of Noise Sources)

1) Roads appear to be the largest noise generator in San Buenaventura due to the pervasiveness and intensity of vehicular noise eminating from them. Resources that may be impacted include eleven parks, twenty-two schools, seven health and old age care facilities and residential and commercial areas.

2) Industrial and commercial areas seem to be the second and third most significant noise sources in San Buenaventura due to their number and their proximity to sensitive uses. Resources potentially impacted include: nine parks, twenty-four schools, eleven health and old age care facilities, and residential facilities.

3) The hillside noise sensitive development in San Buenaventura might be more exposed to noise than noise sensitive land uses located in the flat areas of the City.

4) Based on personal observation and previous noise readings by the County Environmental Health Department, San Buenaventura may be impacted by the Mandalay Power Station located in Oxnard, although the facility may especially impact the hillside development in the eastern portion of the City.

5) The four spot readings taken indicate noise levels may be higher than previously anticipated. It should be noted that this finding would require additional research in order to make specific conclusions.

The options that are found in this section represent a variety of measures or concepts from which formal recommendations could be drawn. They are not intended to be recommendations, but rather a series of alternatives which, individually or collectively could be employed to correct or provide a beginning to alleviate a condition identified in the preceding chapter - FINDINGS.

The variety of options is designed to be a pool from which final recommendations can be drawn and proposed by the appropriate staffs to their respective planning commissions, city councils, or Board of Supervisors. It is suggested that in adopting various options, an entity is establishing a policy orientation which could be pursued and result in formally worded policy or ordinance. In this sense, an entity's adoption of various options would be taken as a mandate to more fully develop the ideas and concepts embodied in the various options. This means before the adoption of any options, an entity should closely coordinate with other entities and special interests who may be impacted by the options in order to obtain a full evaluation of any commitment.

Following this portion of the report are various recommendations on the control of noise made by agencies and concerned organizations. These recommendations emphasize their preferences on the options or a variation on the options outlined in this portion of the report. An entity may draw upon these recommendations to assist it in determining the appropriate control measures to develop and adopt.

1. The County and the nine cities, if feasible, should budget time and money and join together in forming a countywide technical committee composed of persons knowledgeable in the field of noise, persons who must deal with the noise problem and persons who reflect or represent each community's desires. This committee may be responsible for:

   a. The creation of a standardized methodology for the acquisition and processing of noise data to be used in possible noise studies and ordinances;

   b. The establishment of guidelines for predicting future noise generators;

c. The establishment of countywide noise standards which reflect the entire community's desires while considering health impacts;

d. The creation of a countywide noise ordinance to enforce adopted noise standards;

e. The execution of a countywide noise study to determine specific noise impacts;

f. Investigation of noise control techniques that can be used to reduce present and future noise impacts;

g. The following steps may be followed by the committee in order to implement this option:

STEP I: Creation of standardized methodology for measurement of existing and potential noise sources.

STEP II: Investigation of noise control techniques that can be used to reduce future noise impact including creation of a noise control provision in the zoning ordinance.

STEP III: Creation of a noise ordinance with noise level standards.

STEP IV: Inventory of existing noise situations.

STEP V: Investigation and creation of programs to reduce present noise conflicts.

2. A community may wish to take certain remedial steps in the interim while formal standards and an ordinance are being developed. These steps may include:

a. The adoption of the United States Department of Housing and Urban Development's noise standards and interpretive guidelines as interim standards or guidelines (See Illustration 7.9);

b. The adoption of Federal and State laws and standards relating to noise emission levels of motor vehicles, motorcycles, power boats, aircraft, and various other products, as interim standards or guidelines;

c. The adoption of a general policy controlling noise at the source, along the path of the noise and at the recipient. This policy might suggest further investigation into the possibility of using a variety of strategies to control noise including the following:

1. Source Control

A. If it is determined feasible, remove all noise sources.

a. Amortize all noise generators affecting noise sensitive areas.

b. Encourage the movement of noise generators out of an area by tax incentives.

c. Evict noise sources that create conflicts after a specified period.

B. Modification of Equipment

a. Equipment must not generate any more than ___ dB in any octave band measured at ___ feet from the property line or the recipient.

b. Require only acoustically treated equipment be used in urban areas.

c. Public entities purchase only acoustically treated equipment.

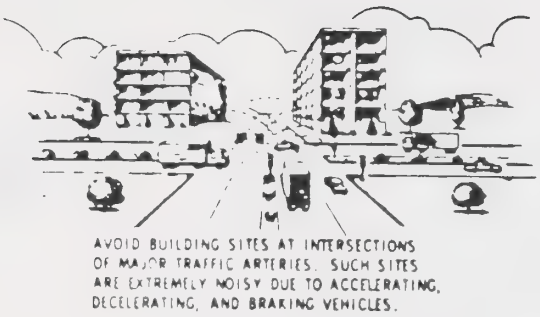
d. Public entities acoustically treat existing equipment.

C. Control hours of Operation

a. No noise generating facility which is located within ___ feet or ___ decibel contour of a noise sensitive area should operate between 7:00 p.m. and 7:00 a.m.

b. Schedule noisy operation at facilities to given time per month in order to minimize impact.

D. Control Number of Operations

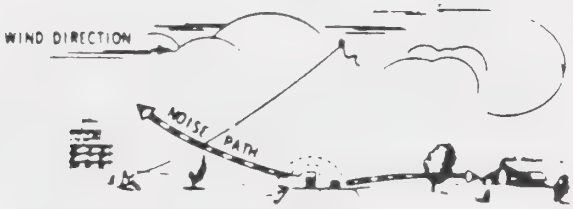


Building Sites near Traffic Junctions.

Building Sites near Hilly Traffic Areas.

Use of Various Noise Barriers.

Use of Buildings as Noise Barriers.



UPWIND BUILDING SITE IS LESS NOISY THAN A DOWNWIND SITE

Selection of Building Sites Relative to Wind Direction.

ILLUSTRATION 9.1

Site Selection Criteria for Noise Mitigation

Source: BERENDT, 1967, pp. 5-1 and 5-2

Use of Natural Noise Barriers.

A THICK GROWTH OF LEAFY TREES & UNDERBRUSH REDUCES NOISE ABOUT 6 to 7 dB/ 100 ft (AVERAGE OVER AUDIBLE FREQ. RANGE)

LOW FREQ. LOSS 3-4 dB
HIGH FREQ. LOSS 10-12 dB

Effectiveness of Wooded Areas as Noise Barriers.

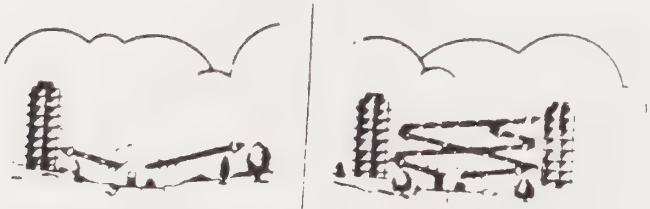
HIGH FREQ. REDUCTION 3-4 dB

SINGLE ROW OF TREES IS WORTHLESS AS NOISE BARRIER DUE TO INTER REFLECTION MULTI-ROWS OF TREES ARE MORE EFFECTIVE

Noise Reduction of Trees.

AVOID HOLLOWS OR DEPRESSIONS THEY ARE GENERALLY NOISIER THAN FLAT OPEN LAND

An Example of a Poor Building Site.



BUILDING SITES IN OPEN AREAS ARE LESS NOISY THAN SITES IN CONGESTED BUILDING AREAS

TRAFFIC ARTERIES BETWEEN TALL BUILDINGS ARE QUITE NOISY

Building Sites near Traffic Arteries and other Buildings.

ILLUSTRATION 9.1

POOR BETTER

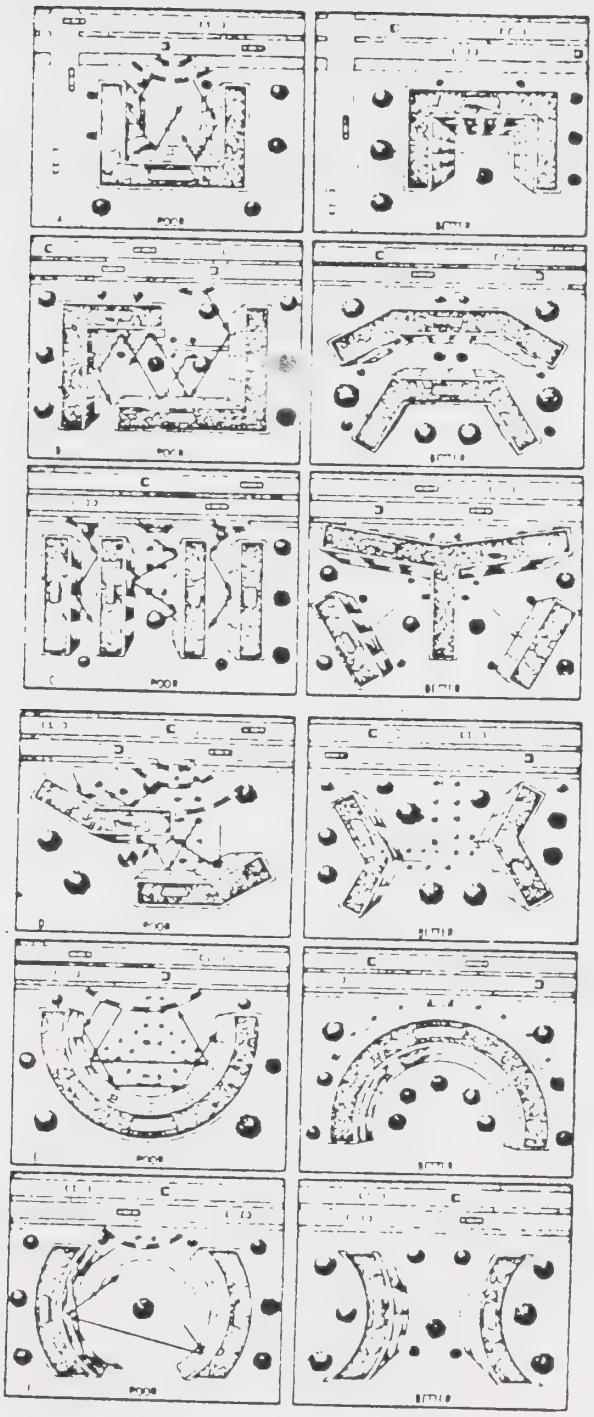


ILLUSTRATION 9.2

Building Orientation on Site
for Noise Mitigation

Source: BERENDT, 1967, pg. 5-4

a. If feasible, facilities should be designed to carry no more than ____ vehicles per hour at ____ mph in noise sensitive areas.

b. Roads or railroad lines should not be allowed to obtain speeds greater than ____ mph within _____ feet of noise sensitive areas.

c. No more than ____ trucks per eight hours may operate on a given road.

d. No more than ____ flights per eight hours may operate at a given facility.

e. No more than ____ flights may operate at a given facility between the hours of 7:00 p.m. and 7:00 a.m.

f. Single-point sources might be limited in the number of times a noisy machine could be used, if feasible.

E. Modification of Operations

a. Only aircraft of less than ____ peak dB(A) shall land between the hours of 7:00 p.m. and 7:00 a.m.

b. If possible and as it relates to safety, signalization of streets and highways should be designed to minimize stop-and-go traffic.

c. Locate noise generating equipment at furthest point from property line.

d. Glide slopes at airports should be greater than ____ degrees.

e. Where alternative routes are available, no trucks over ____ lbs. gross weight shall operate on roads in noise sensitive areas, except selected service vehicles.

f. Designated truck routes should be created which minimize the impact on sensitive areas.

2. Path Control

A. Use of Barriers

a. Any stationary source which generates more than ____ decibels over eight hours shall be required to provide a barrier.

b. Any stationary source which potentially generates more than ____ decibels shall be designed to be enclosed all year round.

c. Barriers shall be required to be built around potential noise sources or noise sensitive areas if prescribed noise levels are exceeded.

d. Barriers shall be required when a roadway is within ____ feet of a noise sensitive area.

e. All construction activities must use temporary barriers.

B. Criteria for Design of Barriers

a. Barriers should be located only after specific studies of the noise problem have been made.

b. If feasible, barriers should be as acoustically high as the noise generator or noise sensitive area.

C. Modification of Reverberation Characteristics of an Area

a. If feasible, buildings located on noisy arterials should have acoustical material on outside walls.

b. Buildings over ____ feet high should be set in ____ feet for every ____ feet in height, if located on a noisy arterial.

3. Recipient Control

A. Site Design

a. Parking lots should be oriented toward noisy arterials.

b. Buildings should be situated so as not to reflect noise into other buildings.

c. Buildings should be situated so as to take advantage of any natural barriers.

d. Buildings should be oriented such that one building acts as a barrier for other buildings on that site.

e. No new land use should be acoustically higher than noise barrier provided.

B. Remove Recipients (see noise source removal)

4. Locational Control

A. Transportation

a. No new road should have on-grade railroad crossing within _____ foot distance of a noise sensitive area.

b. No land uses which attract traffic should encourage traffic to travel through noise sensitive areas.

c. Traffic generators should be grouped into confined areas.

d. Traffic generators, such as parking lots, at noise sensitive uses (hospitals, high schools, multi-family) should be located at the edge of noise sensitive areas.

B. Land Use

a. Whenever possible, one or more of the following types of uses could be located as a barrier between noise sensitive uses and noise generating areas:

1) Multi-family
2) Office buildings
3) Commercial buildings
4) Industrial (quiet)
5) Parks
6) Agriculture
7) Open Space (other than parks or agriculture)

b. No new noise sensitive land use should be located within ____ foot distance of ____ dB noise level of any noise generators.

c. No new noise source should be located within ____ foot distance or ____ dB noise level of any noise sensitive use.

d. If feasible, group noise generators into acoustical areas isolated by hills, tall buildings, etc.

e. Group noise generators into noise districts.

f. No new noise sensitive use should locate within an acoustically confined area which already has a noise generator.

g. No noise sensitive use should locate between a traffic generator and their transportation facility.

h. Avoid locating noise sensitive uses within ____ feet of highway or railway grades.

i. Avoid locating noise sensitive uses within _____ feet of junctions of main arterials.

j. Whenever feasible, create urban open space at major arterial junctions.

k. Whenever feasible, create open space along grades of transportation facilities.

l. Whenever feasible, use malls for noise sensitive downtown streets.

m. Whenever feasible, purchase noise easements.

3. Rather than forming a countywide task force, each entity may independently want to establish and adopt:

A. Methodology for the acquisition and processing of noise data (See Technical Appendix A for examples).

B. Establish guidelines for procedure of predicting future noise generators (See Technical Appendix B for examples).

C. Standards which reflects the established methodology (See Technical Appendix C for examples).

D. A noise ordinance (See Technical Appendix D for examples).

E. A noise study (See "Community Noise Study" by the City of Inglewood).

F. Investigation of noise control techniques that can be used to reduce present and future noise impacts.

G. The entity may wish to follow the steps outlined below in the implementation of this specific option:

STEP I: Creation of Standardized Methodology for measurement of existing and potential noise sources.

STEP II: Investigation of noise control techniques that can be used to reduce future noise impact including creation of a noise control provision in the zoning ordinance.

STEP III: Creation of a noise ordinance.

STEP IV: Inventory of existing noise situation.

STEP V: Investigation and creation of programs to reduce present noise conflicts.

The above measures may be developed through a city-wide citizens committee with staff support, the hiring of an acoustical consultant, or obtaining the services of the Ventura County Environmental Health Department.

4. An entity may want to require a noise sub-report as a part of a project's EIR or case review. This report might be required for all projects proposed for areas within the designated contours or within 1,000 feet of spot sources. Such a report should be based on the data that was gathered using a consistent measuring methodology. The report should contain projected noise levels for the noise generating uses on the site as well as existing noise levels at the site.

5. An entity may wish to obtain more precise noise data on the Southern Pacific Yard operations. This could be obtained by staff calculating the data or by requesting compliance by Southern Pacific Transportation Company to Government Code 65302(g).

6. Since many laws now exist relative to noise, increasing staff or re-assigning priorities to enforce these laws might be done rather than creating new laws. Among the departments which might be given additional staff or new priorities are: (See Illustrations 7.3 to 7.8)

Law Enforcement agencies to enforce nuisance laws.

Animal Control Department to enforce animal related nuisance laws.

Planning Department to enforce zoning violations.

Building Department to enforce Uniform Building Code and State Administrative Code.

Environmental Health Department to enforce occupational noise laws.

A noise control agency or program could be created which would involve all of the above departments in one coordinated effort.

The following are a collection of recommendations from various sources which are intended to guide decision makers in the selection of specific responses to conditions within their jurisdiction.

The following are recommendations adopted by the Ventura County Association of Governments' General Plan Elements Policy Advisory Committee, 1974.

OBJECTIVE:

The Community emphasis in the reduction of noise problems should be directed towards the control of new/future, undesireable noises and abatement of existing undesirable noises, including:

..Control of the noise source
..Provision of buffer areas between the noise source and the recipient
..Protection of the noise recipient
..The control of land uses through planning, building codes, and ordinances
..Any other areas in which reduction or elimination of undesirable noise can be achieved

STANDARDS:

Because various standards for measuring noise levels have been established by public agencies, and because there are a number of reports of health effects of noise which have been referenced in the Noise Element, each community should review these standards and reports, determine their applicability to the community and the ability of the community to effectively utilize the standards. Standards should be established on a uniformly consistent basis throughout the county for:

..Noise measurement procedures
..Maximum noise levels, from exterior sources, for the interior of specific type of structures for living and occupancy
..Noise monitoring program
..Noise related building codes
..Acceptable noise levels

CONTROLS:

Communities are encouraged to adopt, on a consistent countywide basis, a series of controls on noise, including:

<u>Stationary Source Controls</u>
..Control of type of equipment, structures, time of operations, and number of operations

..Control of site location and noise sources
..Control of nuisance type noise sources

Mobile Source Controls
..Control of type of equipment, structures, time of operations, and number of operations
..Control of traffic generated noise by limiting traffic volume, speed and vehicle mix
..Enforcement of noise control equipment requirements
..Design and location of new transportation facilities

Recipient Protection
..Control of noise paths by natural and man-made barriers
..Control of interior noise levels, from exterior sources, through building performance standards
..Control of land uses through zoning, site planning and the general plan development
..Control through transportation planning, including route selection, mode selection, traffic control and control of operations

IMPLEMENTATION:

Each community is encouraged to implement the Noise Element of the General Plan on a uniformly consistent countywide basis, including:

..Adoption of a time schedule and appropriate budgeting for implementing the basic recommendations of the Noise Element of the General Plan
..Participation in an ongoing countywide noise monitoring and control program, including the development of measurement standards
..Adoption of acceptable noise level standards associated with each major land use classification
..Adoption of noise control related building codes
..Adoption of noise control enforcement ordinances
..Adoption of procedures for processing violations or complaints

ADOPTED BY THE GENERAL PLAN
ELEMENTS POLICY ADVISORY
COMMITTEE 6/12/74

The following are recommendations adopted by the City-County Planning Association, 1974.

Objective: The community emphasis in the reduction of noise problems should be directed towards the control of

new/future, undesirable noises and abatement of existing detrimental noises, including:

1. Control of the noise source
2. Provision of buffer areas between the noise source and the recipient
3. Protection of the noise recipient
4. The control of land uses through planning, building codes and ordinances
5. Any other areas in which reduction or elimination of undesirable noise can be achieved

Standards: Because various standards for measuring noise levels have been established by public agencies, and because there are a number of reports of health effects of noise which have been referenced in the Noise Element, each community should review these standards and reports, determine their applicability to the community and the ability of the community to effectively utilize the standards. Standards should be established on a uniformly consistent basis throughout the county for:

1. Noise measurement procedures
2. Maximum noise levels for the interior of specific types of structures for living and occupancy
3. Noise monitoring program
4. Noise related building codes
5. Acceptable noise levels

Controls: Communities are encouraged to adopt, on a consistent countywide basis, a series of controls on noise, including:

Stationary Source Controls

1. Control of type of equipment, time of operations and number of operations
2. Control of site location of noise sources
3. Control of nuisance type noise sources

Mobile Source Controls

1. Control of traffic generated noise by limiting traffic volume, speed and vehicle mix
2. Enforcement of noise control equipment requirements
3. Design and location of new transportation facilities

Recipient Protection

1. Control of noise paths by natural and man-made barriers
2. Control of interior noise levels through building performance standards
3. Control of land uses through zoning, site planning and the general plan development
4. Control through transportation planning, including route selection, mode selection, traffic control, and control of operations

Implementation: Each community is encourage to implement the Noise Element of the General Plan on a uniformly consistent countywide basis, including:

1. Adoption of a time schedule for implementing the basic recommendations of the Noise Element of the General Plan
2. Development and participation in an ongoing countywide noise monitoring program
3. Adoption of acceptable noise level standards associated with each major land use classification
4. Adopt a noise control related building code
5. Adopt noise control enforcement ordinances

ADOPTED BY THE CITY-COUNTY PLANNING ASSOCIATION 6/20/74

The following is from:

"Quiet Cities Report" League of Cities 1970

SPECIFIC RECOMMENDATIONS TO CITIES TO AID IN SOLVING COMMUNITY NOISE PROBLEMS:

1. Each city council should adopt a policy statement for reducing noise in the community as part of a broad approach to environmental quality control.

2. Each city should develop a master plan of noise impact which is part of each element of the city master plan.

3. Cities should adopt a noise ordinance to prohibit unwanted and unnecessary sounds of all types within the community.

4. Cities should review their existing ordinances which relate to noise control for compatibility with the above.

5. Cities should undertake a study of excessive noise sources in the community.

6. Cities should develop a noise enforcement and regulation program and consider assigning an existing staff member or creating an administrative position within the city to be concerned with noise problems. Such a staff person could be in the Planning Department, Building Department, Police Department, Administrative Officer or Environmental Control Division.

7. Cities should review their own functions and activities to make sure that noise, such as construction, refuse collection, and street sweeping has been reduced to the lowest possible level.

8. Cities should enforce the motor vehicle code as it applies to excessive noise.

9. Cities should conduct an educational campaign consisting of civic group presentations, news releases, studies and reports to inform citizens of the dangers of noise and the actions each person can take to help reduce noise pollution.

10. Cities should incorporate noise standards in zoning ordinances which will prohibit incompatible land uses with respect to noise.

11. Cities should consider the development of "quiet zones" in special areas of the city, perhaps in already existing recreation areas. All forms of noise would be controlled so that people could visit and enjoy solitude as part of their recreation and leisure experience.

12. Cities should include maximum noise level requirements in specifications for equipment purchases, construction contracts, and refuse collection. Where specific noise levels cannot be set, specifications should require that vendors state maximum noise levels expected to be produced by their equipment and/or operations.

13. Cities should review and re-evaluate their traffic flow systems to synchronize signalization to avoid traffic stops which produce excessive noise, and to adjust traffic flow to achieve noise levels acceptable to surrounding areas.

14. Cities should seek to develop regional planning agreements for zoning and soundproofing to reduce noise incompatibilities across city boundaries.

15. Cities should review county and regional comprehensive plans to identify noise environmental impact and develop alternatives for the control of major noise sources. In any single function county or regional plan such as transportation, airport development, highway development, etc., the same provisions should apply.

16. Cities should contract state and federal officials to convey their concern over noise problems and encourage residents to do the same. Many aspects of noise pollution require state or federal action and governmental officials at all levels should be aware of public need for a solution to noise problems.

The following is from:

"A report to the 1971 Legislature on the Subject of Noise Pursuant to Assembly Concurrent Resolution 165, 1970".

Prepared by the Advisory Committee on Noise for the Human Relations Agency, State Department of Public Health.

RECOMMENDATION

Enact legislation requiring that schools and residences be excluded from land bordering freeways for a distance of 500 feet or that they be protected from freeway noise by equivalent barriers or equivalent freeway design techniques.

RECOMMENDATION

A. Enact legislation to the end that all state agencies require noise control in equipment purchased for state use and that they require noise control in all stages of planning and construction of projects financed by state funds.

B. Encourage local governments to adopt similar regulations.

C. Through appropriate agencies, identify and implement means, including demonstration projects, to accelerate the application of existing noise control technology to all sources of noise in California.

The following is from:

"Oxnard-2000 General Plan: Noise Element, Phase 1, Criteria and Background". Prepared by the Oxnard Planning Department.

NOISE STANDARDS

(1) City Noise Standards. Establish an immediate city-wide noise standard of a mean (L_{50}) of 75dB(A) for the outdoor environment, as measured at the property line or boundary of the public right of way. Prohibit any noise which disturbs the peace or quiet of any neighborhood or disturbs or annoys a reasonable person of normal sensitiveness.

(2) Model Noise Ordinance. Study and consider feasibility of adoption of the League of California Cities' Model Noise Ordinance, or similar nuisance noise ordinance.

(3) Goals and Objectives. Establish concept of noise goals and objectives for each zone and community in the City. Include the concept that noise levels will decrease in incremental stages to achieve an ultimate "quiet city".

(4) City Activities. Require inclusion of noise impact in evaluating all City activities. Initiate feasibility analysis of requiring City noise standards in purchase, rental or lease of equipment, including, but not limited to, office equipment, air conditioning, buses, trucks, automobiles, park and street tree maintenance. Initiate feasibility analysis of requiring noise specifications in new construction, such as public works and civic center expansion.

Monitoring and Measurement

(5) Equipment. Investigate costs of noise measurement equipment to create an ongoing Community Noise Management Program.

(6) Specialist Personnel. Consider establishment of a trained specialist or unit to conduct a Community Noise Survey and then to monitor, test, license and enforce City noise regulations. Such a unit could eventually report to an Environmental Affairs Director who would be concerned with all manifestations of pollution, resource conservation, and the like. Such a specialist unit may serve parttime to meet Building Department needs for enforcing new Sound Transmission Control provisions of the Uniform Building Code.

(7) Noise Information. Establish an ongoing file of noise complaints, attitudes and noise generation. Integrate this with a cumulative environmental impact assessment process.

(8) Noise Surveys. Evaluate existing noise surveys relevant to Oxnard, such as the work of L. C. MaGahan. Initiate feasibility study of new noise surveys. Coordinate with noise contours of transportation elements.

Transportation

(9) Truck Routes. Investigate concept of truck routes to mitigate noise effects on residential areas.

(10) Regional Planning. Consider noise implications in inputs to 1975 Ventura County Multi-Modal Transportation Plan. Support choice of transportation modes which are most efficient from the standpoint of noise generation.

(11) Noise Contours. Develop noise contours and projections for arterials within Oxnard's jurisdiction to supplement those provided by the Division of Highways for State routes. Provide supplementary information as examples on typical noise generation for collector and local streets.

Environmental Health

(12) Environmental Health Coordination. Investigate implications of noise as a public environmental health problem in cooperation with other governmental agencies.

Public Safety

(13) Motor Vehicle Code. Evaluate feasibility of local enforcement of Sections 27150 and 27151 of the Motor Vehicle Code.

(14) Coordination. Integrate police functions with a Community Noise Management Program. Solicit Police Department opinion regarding enforcement of nuisance provisions such as found in the League of California Cities' Model Noise Ordinance.

Building Codes

(15) Noise Impact Areas. Analyze feasibility of selectively more stringent building insulation in high noise impact areas as affected by freeways, railroads, and airports. Determine amounts of insulation or other materials required.

(16) Stringent Sound Deadening. Examine need for more stringent sound deadening than required by Uniform Building Code provisions, both for internal and external noise. Consider imposition on existing and new development. Evaluate gradually more stringent standards at 5 or 10 year increments.

General Administration

(17) Program Management. Assign responsibility for inventory of noise problems and solutions to an appropriate authority. This may be an existing individual or committee, or may be an *ad hoc* citizen or staff committee. Progress reports on implementing this report will be received to provide the basis for further recommendations on noise pollution control.

(18) Advocacy. Make recommendations to County, State and Federal Governments on noise legislation and financial assistance. Represent citizens where and when they are or will be potentially exposed to adverse sound.

Housing

(19) HUD Criteria. Recognize HUD standards on noise and evaluate all studies and projects in accordance with Circular 1390.2, Noise Assessment Guidelines, Guide to ... Structure Borne Noise, and other HUD material.

Planning Department Implementation

Introduction

In addition to the above items extending throughout the City administration, the following items are the specific responsibility of the Planning Department.

Noise Element

(1) Noise Contours. Request, inspect and revise noise contour information for major transportation elements submitted under State law.

(2) Research. Continue to develop inventory of resources on noise.

(3) Refinement. Refine information and criteria in accordance with finalized State Guidelines on the Noise Element.

(4) Land Use Survey. Survey, list, and map those uses signaled out as especially susceptible to adverse noise impact.

Current Planning

(5) EIR's. Include noise impact and noise generation in all Environmental Impact Reports. Accumulate impacts in an information system to assess composite effect on the noise environment.

(6) Planned Development. Encourage use of sound urban design concepts and optimum noise mitigation in staff analysis and approval conditions of Planned Development Permits.

(7) Zoning. Consider noise impact in all other zoning matters as relevant.

Planning Commission

(8) Model Noise Ordinance. Submit League of California Cities' Model Noise Ordinance for Planning Commission study and recommendation to the City Council on need for nuisance noise control.

DESCRIPTION OF HUD GUIDELINES

The HUD guidelines are a series of non-noise metering techniques to evaluate the noise levels of a particular site. Included are techniques to obtain information on aircraft, roadways, and railway noises as well as a walk-away test to evaluate actual on-site noises. The information obtained through these tests are then related to the HUD standards given in Illustration 7.9, in order to evaluate the noise levels at a particular site.

GLOSSARY

A-WEIGHTED SOUND LEVEL (dBA) - A quantity, in decibels, read from a standard sound-level meter that is switched to the weighting network labeled "A". The A-weighting network discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear at moderate sound levels. The A-weighted sound level measures approximately the relative "noisiness" of "annoyance" of many common sounds.

ACOUSTICAL POWER - See sound power.

ACOUSTICS - (1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The acoustics of an auditorium or of a room, the totality of those physical qualities (such as size, shape, amount of sound absorption, and amount of noise) which determine the audibility and perception of speech and music.

AIRBORNE SOUND - Sound that reaches the point of interest by propagation through air.

AMBIENT NOISE - See background noise.

ANALYSIS - The analysis of a noise generally refers to the composition of the noise into various frequency bands, such as octaves, third-octaves, etc.

ARTICULATION INDEX (AI) - A numerically calculated measure of the intelligibility of transmitted or processed speech. It takes into account the limitations of the transmission path and the background noise. The articulation index can range in magnitude between 0 and 1.0. If the AI is less than 0.1, speech intelligibility is generally low. If it is above 0.6, speech intelligibility is generally high.

ASDS - A new rating scheme is being created for the FAA by the MITRE Corporation called Aircraft Sound Description System. Instead of expressing the level of noise, it tells how many minutes an area is exposed to 85 dB(A) sound or greater.

AUDIBLE RANGE (OF FREQUENCY) (AUDIO-FREQUENCY RANGE) - The frequency range 16 H_z to 20,000 H_z (20 kH_z). Note: This is conventionally taken to be the normal frequency range of human hearing.

BACKGROUND NOISE - The total of all noise in a system or situation, independent of the presence of the desired signal.

BAND CENTER FREQUENCY - The designated mean frequency of a band of noise or other signal. For example, 1,000 hz is the band center frequency for the octave band that extends from 707 hz to 1,414 Hz, or for the third-octave band that extends from 891 Hz to 1,123 Hz.

BAND PRESSURE (OR POWER) LEVEL - The pressure (or power) level for the sound contained within a specified frequency band. The band may be specified either by its lower and upper cut-off frequencies, or by its geometric center frequency. The width of the band is often indicated by a prefatory modifier; e.g., octave band, third-octave band, 10-Hz band.

BROAD-BAND NOISE - Noise whose energy is distributed over a broad range of frequency (generally speaking, more than one octave).

C-WEIGHTED SOUND LEVEL (dBC) - A quantity, in decibels, read from a standard sound-level meter that is switched to the weighting network labeled "C". The C-weighting network weights the frequencies between 70 Hz and 4,000 Hz uniformly, but below and above these limits frequencies are slightly discriminated against. Generally, C-weighted measurements are essentially the same as overall sound-pressure levels, which require no discrimination at any frequency.

COMMUNITY NOISE EQUIVALENT LEVEL - Community Noise Equivalent Level (CNEL) is a cumulative measure of community noise. It uses the A-weighted sound level and applies weighting factors which place greater importance upon noise events occurring during the evening hours (7:00 p.m. to 10:00 p.m.) and even greater importance upon noise events at night (10:00 p.m. to 6:00 a.m.).

COMPOSITE NOISE RATING - Composite noise rating (CNR) is anoise exposure used for evaluating land use around airports. It is in wide use by the Department of Defense in predicting noise environments around military airfields.

CONTINUOUS NOISE - On-going noise whose intensity remains at a measurable level (which may vary) without interruption over an indefinite period or a specified period of time.

DAMPING - The dissipation of energy with time or distance. The term is generally applied to the attenuation of sound in a structure owing to the internal sound-dissipative properties of the structure or owing to the addition of sound-dissipative materials.

DECIBEL - The unit in which the levels of various acoustical quantities are expressed. Typical quantities so expressed are sound pressure level, noise level, and sound power level.

DIFFUSE SOUND FIELD - The presence of many reflected waves (echoes) in a room (or auditorium) having a very small amount of sound absorption, arising from repeated reflections of sound in various directions.

DURATION - The length of time a sound is present.

EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) - A physical measure designed to estimate the effective "noisiness" of a single noise event, usually an aircraft flyover; it is derived from instantaneous PNL values by applying corrections for pure tones and for the duration of the noise.

ENERGY EQUIVALENT NOISE LEVEL - The energy equivalent noise level for a stated period is the level of a constant, or steady state, noise which has an amount of acoustic energy equivalent to that contained in the measured noise. The symbol for the energy equivalent noise level is Leq.

ENVIRONMENTAL NOISE - By Sec. 3(11) of the Noise Control Act of 1972, the term "environmental noise" means the intensity, duration, and character of sounds from all sources.

EQUIVALENT SOUND LEVEL - The level of a constant sound which, in a given situation and time period, has the same sound energy as does a time-varying sound. Technically, equivalent sound level is the level of the time-weighted, mean square, A-weighted sound pressure. The time interval over which the measurement is taken should always be specified.

FARFIELD - Consider any sound source in free space. At a sufficient distance from the source, the sound pressure level obeys the inverse-square law, and the sound particle velocity as in phase with the sound pressure. This region is called the far field of the sound source. Regions closer to the source, where these two conditions do not hold, constitute the near field. Now consider a sound source within an enclosure. It is also sometimes possible to satisfy the far-field conditions over a limited region between the near field and the reverberant field, if the absorption within the enclosure is not too small so that the near field and the reverberant field merge.

FILTER - A device that transmits certain frequency components of the signal (sound or electrical) incident upon it, and rejects other frequency components of the incident signal.

FREE SOUND FIELD (FREE FIELD) - A sound field in which the effects of obstacles or boundaries on sound propagated in that field are negligible.

FREQUENCY - The number of oscillations per second (a) of a sine-wave of sound, and (b) of a vibrating solid object; now expressed in hertz (abbreviation Hz), formerly in cycles per second (abbreviation cps).

HEARING LEVEL - The difference in sound pressure level between the threshold sound for a person (or the median value or the average for a group) and the reference sound pressure level defining the ASA standard audiometric threshold (ASA: 1951). Note: The term is now commonly used to mean hearing threshold level (qv). Units: decibels.

HEARING LOSS - At a specified frequency, an amount, in decibels, by which the threshold of audibility for that ear exceeds a certain specified audiometric threshold, that is to say, the amount by which a person's hearing is worse than some selected norm. The norm may be the threshold established at some earlier time for that ear, or the average threshold for some large population, or the threshold selected by some standards body for audiometric measurements.

HEARING LOSS FOR SPEECH - The difference in decibels between the speech levels at which the "average normal" ear and a defective ear, respectively, reach the same intelligibility, often arbitrarily set at 50%.

HEARING THRESHOLD LEVEL - The amount by which the threshold of hearing for an ear (or the average for a group) exceeds the standard audiometric reference zero (ISO, 1964; ANSI, 1969). Units: decibels.

HERTZ - See frequency.

IMPACT INSULATION CLASS (IIC) - A single-figure rating which is intended to permit the comparison of the impact sound insulating merits of floor-ceiling assemblies in terms of a reference contour.

IMPULSE NOISE (IMPULSIVE NOISE) - Noise of short duration (typically, less than one second) especially of high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition. Note: Impulse noise is characteristically associated with such sources as explosions, impacts, the discharge of firearms, the passage of super-sonic aircraft (sonic boom) and many industrial processes.

INDIVIDUAL SENSITIVITY - The degree of perceptiveness an individual may have to noise. The perceptiveness may vary between individuals due to differences in noise exposure, temperament, physical differences, etc.

INFORMATIONAL CONTENT - Sound which contain semantic cues.

INFRASONIC - Having a frequency below the audible range for man (customarily deemed to cut off at 16 Hz).

INTERMITTENT NOISE - Fluctuating noise whose level falls once or more times to low or unmeasurable values during an exposure.

INVERSE-SQUARE LAW - The inverse-square law described that acoustic situation where the mean-square sound pressure changes in inverse proportion to the square of the distance from the source. Under this condition the sound-pressure level decreases 6 decibels with each doubling of distance from the source.

L_{10} LEVEL - The sound level exceeded 10 percent of the time period during which measurement was made.

L_{50} LEVEL - The sound level exceeded 50 percent of the time period during which measurement was made.

L_{90} LEVEL - The sound level exceeded 90 percent of the time period during which measurement was made.

LEVEL - The level of an acoustical quantity (e.g., sound pressure), in decibels, is 10 times the logarithm (base 10) of the ratio of the quantity to a reference quantity of the same physical kind.

LOUDNESS - (1) A listener's perception of the intensity of a strongly-audible sound or noise, (2) The factor n by which a constant-intensity sound or noise exceeds, in the judgment of a listener, the loudness of a 1,000 Hz tone heard at a sound pressure 40 dB above threshold. The unit is the tone. See also loudness level.

LOUDNESS LEVEL - The number, attributed to a constant-intensity sound or noise, of decibels by which a 1,000 Hz purtone, judged by listeners to be as loud as the sound or noise, exceeds the reference level 2 x 10-5 N/m^2. The unit is the phon. See also loudness.

MASKING - The action of bringing one sound (audible when heard alone) to inaudibility or to unintelligibility by the introduction of another, usually louder, sound. See masking noise.

MASKING NOISE - A noise which is intense enough to render inaudible or unintelligible another sound which is simultaneously present.

NEAR FIELD - See far field.

NOISE - Any sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.

NOISE AND NUMBER INDEX (NNI) - A measure based on perceived noise level and used for rating the noise environment near an airport.

NOISE EXPOSURE - The cumulative acoustic stimulation reaching the ear of the person over a specified period of time (e.b., a work shift, a day, a working life, or a lifetime).

NOISE EXPOSURE FORECAST (NEF) - A measure of the total noise exposure near an airport; it is derived from EPNL contours for individual aircraft by including considerations of mix of aircraft, number and time of operation, runway utilization, flight path, and operating procedures.

NOISE-INDUCED PERMANENT THRESHOLD SHIFT (NIPTS) - Permanent threshold shift caused by noise exposure, corrected for the effect of aging (presbyacusis).

NOISE-INDUCED TEMPORARY THRESHOLD SHIFT (NITTS) - Temporary threshold shift caused by noise exposure.

NON-VOLUNTARY EXPOSURE TO ENVIRONMENTAL NOISE - The exposure of an individual to sound which (1) the individual cannot avoid or (2) the sound serves no useful purpose (e.g., the exposure to traffic noise or exposure to noise from a lawn mower).

NOYS - A unit used in the calculation of perceived noise level.

OCTAVE - Any two pure tones, whose ratio of frequencies is exactly two, are said to be "an octave apart", or to be "separated by an octave".

OCTAVE BAND - All of the components, in a sound spectrum, whose frequencies are between two sine wave components separated by an octave.

OCTAVE-BAND SOUND PRESSURE LEVEL - The integrated sound pressure level of only those sine-wave components in a specified octave band, for a noise or sound having a wide spectrum.

ONE THIRD-OCTAVE BAND - A frequency band whose cut-off frequencies have a ratio of 2-1/3, which is approximately 1.26. The cut-off frequencies of 891 Hz and 1,123 Hz define a third-octave band in common use. See also band center frequency.

ONSET - The character of the way in which a given sound begins (i.e., sudden vs. gradual).

PEAK SOUND PRESSURE - The maximum instantaneous sound pressure (a) for a transient or impulsive sound of short duration in time, or (b) in a specified time interval for a sound of long duration.

PERIODICITY - Number of occurrences of a noise during a given period of time.

PHON - The unit of measurement for loudness level.

PITCH - A listener's perception of the frequency of a pure tone; the higher the frequency, the higher the pitch.

PERCEIVED NOISE LEVEL (PNL) - The level in dB assigned to a noise by means of a calculation procedure that is based on an approximation to subjective evaluations of "noisiness".

PURE TONE - A sound wave whose waveform is that of a sine wave.

RANDOM NOISE - An oscillation whose instantaneous magnitude is not specified for any given instant of time. It can be described in a statistical sense by probability distribution functions giving the fraction of the total time that the magnitude of the noise lies within a specified range.

REVERBERATION - The persistence of sound in an enclosed space, as a result of multiple reflections, after the sound has stopped.

SOUND - See acoustics (1).

SOUND INSULATION - (1) The use of structures and materials designed to reduce the transmission of sound from one room or area to another or from the exterior to the interior of a building. (2) the degree by which sound transmission is reduced by means of sound insulating structures and materials.

SOUND LEVEL - The quantity in decibels measured by a sound level meter satisfying the requirements of American National Standards Specification for Sound Level Meters S1.4-1971. Sound level is the frequency-weighted sound pressure level obtained with the standardized dynamic characteristic "fast" or "slow" and weighting A, B, or C; unless indicated otherwise, the A-weighting is understood. The unit of any sound level is the decibel, having the unit symbol dB.

SOUND-LEVEL METER - An instrument, comprising a microphone, an amplifier, an output meter, and frequency-weighting networks, that is used for the measurement of noise and sound levels in a specified manner.

SOUND POWER - Of a source of sound, the total amount of acoustical energy radiated into the atmospheric air per unit time.

SOUND POWER LEVER - The level of sound power, averaged over a period of time, the reference being 10-12 watts.

SOUND PRESSURE - (1) The minute fluctuations in atmospheric pressure which accompany the passage of a sound wave; the pressure fluctuations on the tympanic membrane are transmitted to the inner ear and give rise to the sensation of audible sound. (2) For a steady sound, the value of the sound pressure averaged over a period of time. (3) Sound pressure is usually measured (a) in dynes per square centimeter (dyn/cm^2), or (b) in newtons per square meter (N/m^2). 1 N/m^2 = 10 dyn/cm^2 10^{-5} times the atmospheric pressure.

SOUND PRESSURE LEVEL - The level of sound pressure; squared and averaged over a period of time, the reference being the square of 2×10^{-5} newtons per square meter.

SOUND TRANSMISSION CLASS, (STC) - The preferred single figure rating system designed to give an estimate of the sound insulation properties of a partition or a rank ordering of a series of partitions. It is intended for use primarily when speech and office noise constitute the principal noise problem.

SPEECH-INTERFERENCE LEVEL (SIL) - A calculated quantity providing a handy guide to the interfering effect of a noise on speech. The speech-interference level is the arithmetic average of the octave-band sound-pressure levels of the noise in the most important part of the speech frequency range. The levels in the three octave-frequency determine the speech-interference level.

SPEED (VELOCITY) OF SOUND IN AIR - The speed of sound in air is 344m/sec or 1,128 ft/sec at 70 F.

SPHERICAL WAVE - A sound wave in which the surfaces of constant phase are concentric spheres. A small (point) source radiating into an open space produces a free sound field of spherical waves.

STEADY-STATE SOUNDS - Sounds whose average characteristics remain constant in time. Examples of steady-state sounds are a stationary siren, an air-conditioning unit, and an aircraft running up on the ground.

STRUCTURE BORNE SOUND - Sound that reaches the point of interest, over at least part of its path, by vibration of a solid structure.

THRESHOLD OF AUDIBILITY (THRESHOLD OF DETECTABILITY) - For a specified signal, the minimum sound pressure level of the signal that is capable of evoking an auditory sensation in a specified fraction of the trials.

THRESHOLD SHIFT - An increase in a hearing threshold level that results from exposure to noise.

TONAL QUALITY - See pitch or frequency.

TRANSIENT SOUNDS - Sounds whose average properties do not remain constant in time. Examples are an aircraft flyover, a passing truck, a sonic boom.

ULTRASONIC - Having a frequency above the audible range for man (conventionally deemed to cut off at 20,000 Hz).

WAVELENGTH - For a periodic wave (such as sound in air), the perpendicular distance between analogous points on any two successive waves. The wavelength of sound in air or in water is inversely proportional to the frequency of the sound. Thus the lower the frequency, the longer the wave length.

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RESOLUTION NO. 75-61

A RESOLUTION OF THE CITY COUNCIL ADOPTING
THE NOISE ELEMENT OF THE COMPREHENSIVE PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The Comprehensive Plan Advisory Committee and Planning Commission have presented for Council consideration the Noise Element of the City's Comprehensive Plan.

SECTION 2: The Noise Element has been prepared and approved in accordance with State Law so as to identify and appraise the urban noise situation within the City. The Noise Element has been fully considered and all legal requirements regarding public hearings have been complied with.

SECTION 3: The City Council hereby adopts the Noise Element as presented.

Passed and adopted this 21st day of April, 1975.

Barbara J. Kam

City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting thereof, held on the 21st day of April, 1975, by the following vote to wit:

AYES: Councilmen Kountz, Garrett, McWherter, Bozung, Laufer and Eaton.

NOES: Councilmen None.

ABSENT: Councilwoman Ellison.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 22nd day of April, 1975.

Barbara J. Kam

City Clerk

SEISMIC SAFETY & SAFETY

SECTION VI

SEISMIC SAFETY AND SAFETY ELEMENT

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SEISMIC SAFETY AND SAFETY ELEMENT

INTRODUCTION

The California State Legislature has required all California cities and counties to include in their General or Comprehensive Plans a Safety Element "for the protection of the community from fires and geologic hazards", and a Seismic Safety Element to identify and appraise seismic hazards. In response to these requirements, the City of San Buenaventura, together with other cities in the County, contracted with the Ventura County Planning Department to prepare the documents: the Seismic Safety Element and the Safety Element. These elements were later combined into a single document called the Seismic Safety and Safety Element which describes the general and specific policies adopted by the City Council in 1974.

A Seismic Safety Element is no longer required by State law and discussions of the subject may be included in the Safety Element.

ACKNOWLEDGMENTS

SAN BUENAVENTURA CITY COUNCIL

David D. Eaton	Mayor
Ira E. Laufer	
Eugene C. Kountz	
Joseph Garrett	
John A. McWherter	
Dick Bozung	
Patricia Ellison	

SAN BUENAVENTURA PLANNING COMMISSION

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* Resigned

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"Where have all the houses gone . . .

Once upon a time people mostly lived in the country and every day as they worked and played they learned about rocks and water. They learned that rocks and water run downhill. So when they built their houses they built them away from running rocks and running water. Today people mostly live in cities and they know about running automobiles and running stores, but they don't know about rocks and water. People build cities almost anywhere in the desert, in the low valleys and the high mountains, and by the seashore.

Some people like to build their houses in the desert because the desert is dry and the hills are rocky, bold, and clean. But rocky hills are hard, and hard to build on, so the people build their houses in the narrow canyons between the hills. These people don't know why the hills are bold and clean. They are bold and clean because in the dry desert, floods wash away the rock and soil. Then, the rock and soil and water flush down the narrow canyons and through the houses the people build.

Some people like to build their houses in a long straight valley. They don't know why the valley is long and straight. The valley is long and straight because it follows an earthquake fault. Sometimes the fault makes the valley quake, and this shakes the people up while it shakes their houses down.

Some people like to build their houses among the big green trees in the mountains. These people don't know why the trees are big and green. They are big and green because big green trees like lots of rain. The rain that they like sometimes knocks them down then picks them up; rain also picks up rock and soil. Then the rain and trees and rock and soil go bouncing down the canyons and through the houses that the people build.

Some people love the sea so they build their houses on seacliffs. Those who love the sea the most build their houses at the edge. These people don't know why the seacliffs are there because they spend their time looking at the sea and not the cliffs. The seacliffs are there because the land is in the way of where the sea wants to go and that is why they are called seacliffs. The cliff houses are on the land that's in the way of where the sea wants to go, so the cliff houses go too, see?

Some people like to build their houses on soft rocks because soft rocks are easy to build on. But soft rocks can't stand people building on them, so they don't. Soft rocks are sometimes found on little shelves along a hillside or the bumpy ground below. Little shelves and bumps on hillsides are called landslides. Most landslides are on their way somewhere, and houses built on landslides that are on their way somewhere are on their way somewhere.

. . . gone to kindling every one"

George B. Cleveland

California Geology
May 1973

BACKGROUND

In 1971, the California Legislature passed legislation requiring two new elements to be added to the General Plans of all cities and counties in the State. These were the Safety Element and the Seismic Safety Element.

The impetus for this legislation was a series of natural disasters which had occurred in Southern California in the preceding 2 years. The winter of 1969 saw particularly heavy rains, especially during January and February. Serious flooding occurred in many areas of Southern California but especially in Ventura County. These heavy rains caused substantially increased growth in the Chaparral vegetation belts of the Southern California hills and mountains. Then during thirteen days of September and October, 1970, a series of disastrous fires broke out, fanned by dry desert Santa Ana Winds. The fires burned over half a million acres of brush and timber land, destroyed 722 homes, killed 16 people and cost $233 million to control. The following winter landslides and mudslides occurred in the hills and damaged many of the structures that had escaped the Fall fires.

In response to these disastrous floods, fires and landslides, the 1971 Legislature enacted Government Code Section 65302.1, which requires of each city and county general plan:

> *A safety element for the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazards mapping in areas of known geologic hazard.*

The impetus for the Seismic Safety Element was the February 9, 1971, San Fernando Valley earthquake. This earthquake of 6.6 magnitude took 65 lives and caused almost $1 billion of damage to freeway interchanges, hospitals (accounting for the greatest loss of life), utilities, dams, and public, private, commercial and industrial buildings. The earthquake also pointed up major discrepencies in building design and a laxness in land use planning.

This disaster prompted the Legislature to require another element to the general plan, a Seismic Safety Element. Government Code Section 65302 (F) requires:

> *A seismic safety element consisting of an identification and appraisal of seismic*

hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failure or to the effects of seismically induced waves such as tsunamis and seiches. The seismic safety element shall also include an appraisal of mud-slides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards such as possible surface ruptures from faulting, ground shaking, ground failure and seismically induced waves.

Both elements are required to be adopted by September 20, 1974; however, time extensions may be granted under special circumstances. While there was no penalty attached to the original September 20th due date, State authorities have hinted that citizens may be able to bring class action suits against the jurisdictions not complying with the deadlines. Specific penalties may be created if the mandated adoption date is extended by the Legislature; such was the case when the deadline for the Open Space Element was extended.

The preparation of the Seismic Safety and Safety Elements (hereafter referred to as the Seismic and Safety Element) is a coordinated effort between the County of Ventura and the nine cities within the county. It was felt that since most of the hazards are regional rather than local in scope, that a general countywide treatment of each hazard would be more valuable than ten separate, locally oriented elements. The element, then, represents the culmination of participation either directly or indirectly by all cities within Ventura County.

PURPOSE

In preparing the Seismic Safety and Safety Elements, a number of purposes will hopefully be achieved. Among these are:

1. To meet the requirements of State law.

2. To integrate the Seismic Safety and Safety Elements into one coherent document.

3. To investigate the various hazards from a regional as well as a local perspective so as to provide a more integrated picture of the hazardous conditions within Ventura County.

4. To develop a framework which will permit the investigation of all types of hazards and the resources they impact.

5. To present the information collected in a form which will allow decision makers and the public to quickly evaluate the pertinent aspects of a given hazard.

6. To offer a range of response measures from which decision makers may choose as they attempt to alleviate a given hazard.

7. To provide a framework in which future inventory and analysis can be performed.

ORGANIZATION

INTEGRATED ELEMENTS

Because of the confused and overlapping nature of the mandated Seismic Safety and Safety Elements, it was decided to merge the two into one integrated discussion of hazards. This procedure was also recommended by the State General Plan Guidelines.

REGIONAL EMPHASIS

In discussing hazards which affect both incorporated and unincorporated portions of Ventura County, it was necessary to conduct a comprehensive regional study while also providing detailed treatment of local areas and problems. To this end, each hazard is discussed from a regional standpoint prior to being examined at the local level.

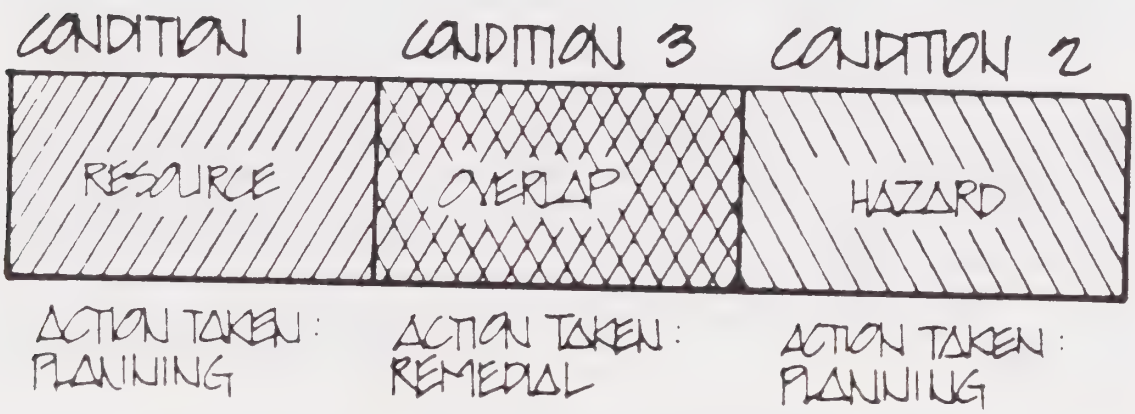
The result of this approach to the two elements, is that each entity will receive one document whose general discussion of the various hazards will be the same as that received by the other entities. Each entity, however, will receive its own individualized discussion of the hazard within its jurisdiction.

ANALYSIS FRAMEWORK

Before embarking on the preparation of the two hazard related elements it was necessary to devise a framework for analysis that would allow the integration of the two elements into one document and permit the systematic investigation of hazards not set out in State law.

The framework decided upon, views hazardous conditions as an interrelationship between resources (natural, human, and man-made) and hazards (natural and man-made). Hazards and resources often exist apart from one another and under such conditions, it is generally concluded that a problem does not exist. For example, landslides in the north half of the county or on Sulphur Mountain are not thought of as hazards because they generally do not affect people or property. Landslides in the Camarillo Hills or immediately above the City of Ventura, however, are usually considered hazardous because they may impact people and property.

The analytic framework, then, identifies three types of conditions: one in which a hazard exists apart from resources; one in which a resource exists apart from hazards; and one in which hazards and resources exist in proximity to one another. In the first two cases, there is an opportunity to plan around the resource or hazard - to prevent hazards from encroaching on resources or to locate resources away from hazards. In the third case where there is an overlap of resources and hazards, planning may not be as effective as various remedial measures.



The Seismic-Safety document has been developed along the lines of this framework in that it identifies resources and hazards, and the instances where they overlap. The hazards are mapped on 1" = 4000' scale maps for the county, 1" = 1000' for the cities and on 11" x 17" sheets contained within the document. Resources will be plotted on transparent sheets which can overlay the 11" x 17" hazard maps.

HAZARD EVALUATION

One of the purposes of the Seismic and Safety Elements is to provide decision makers with the information necessary to evaluate the nature of a given hazard and possible courses

of action. To facilitate this, it is felt that decision makers and the general public should have a general knowledge of a hazard, know where it exists and who is managing it.

In addition, one should know the probability of the hazard occurring, the severity of the hazard should it occur, the resources that are apt to be affected, and the validity of the information which leads to conclusions in the above areas. This information is summarized in the FINDINGS Section of each hazard and should be evaluated and used as a basis for responding to various hazards.

One aspect not addressed in the document, but which will automatically enter into any final decision relative to hazards, is the cost involved. This matter was not addressed because only the local jurisdiction can place values (benefits) on resources that may be lost; and only the local jurisdiction can decide on the appropriate response to a hazard and its attendant costs. A local entity's conclusions about costs and benefits are then the final elements in a Risk Analysis which evaluates: probability, severity, resources, the validity of information, and cost-benefits.

This document, then, attempts to present the available information necessary for a response to a hazardous condition. It does not attempt to make the types of value judgements that ultimately rest with local decision makers.

In addition to the written text, there are a number of maps that accompany each hazard discussed. These maps are an essential part of any hazard evaluation. Hazard zones appear on these maps which depict varying degrees of severity for a given hazard. While these zones are, by necessity, defined by distinct lines, the hazard depicted may not conform exactly to the defined zones. The reasons for this are imprecise data, and small scale maps which do not permit the detailed plotting of data.

For these reasons, the zones that are defined should not be used for specific planning purposes, but rather, should be used to direct more precise studies which would specifically delineate the location and nature of the hazard in question. The various hazard zones, then, define areas of probable hazard which should undergo further study. Additional studies, for example, might be done to allow for more precise planning, or to determine the conditions at a specific construction site.

OPTIONS

After evaluating the information presented on a given hazard and in particular the FINDINGS, an entity must decide on an appropriate response. Responses may range from doing nothing

at all to enacting new ordinances. As the assessment of a hazard must ultimately be made by the local jurisdiction, so must the jurisdiction decide what type of response is warranted by its assessment. To assist in this matter, this document offers a range of responses for each hazard from which the jurisdiction may select what it feels are appropriate responses. These prospective responses are termed "options."

The option packet (published separately) represents a range of implementation measures or concepts from which formal recommendations can be drawn. Before adopting any options, they should be carefully evaluated and coordinated with the agencies and interests, both public and private, which may be affected. They are not intended to be recommendations, but rather a series of alternatives which individually or collectively can be employed to correct a situation or condition.

The range of options is designed to be a pool from which final recommendations can be drawn and proposed by the appropriate staffs to their respective planning commissions, city councils, or Board of Supervisors. The county planning staff then, will not be making recommendations but will offer a range of alternative responses for each hazard from which the staffs from the respective entities may develop recommendations.

This approach was selected because recommendations should come only after a hazard has been assessed in light of local interests and concerns. It was felt that the staffs and citizens of the respective jurisdictions, being in touch with local attitudes, could make more appropriate recommendations than could the county planners preparing the element.

RECOMMENDATIONS ON OPTIONS

To assist the various staffs and decision makers in selecting the appropriate responses to conditions identified in this element, the recommendations of various authorities and advisory groups have been included in the rear of the document. The adoption of these recommendations is not required; they are only intended to guide in the selection of appropriate responses.

ACCEPTABLE RISK

Implicit in the State law mandating a Safety Element, and explicit in the General Plan Guidelines published by the

State, is the notion of "acceptable risk" - "The level of risk below which no specific action by local government is deemed to be necessary."

This issue is addressed by an entity when it performs a Risk Analysis of a given hazard and subsequently decides on an appropriate response. The response that is decided upon implicitly identifies the level of risk that was perceived. If the response is "no action," then it may be concluded that the level of risk is acceptable and perhaps quite low. If on the otherhand, a strong response is issued (such as the immediate abatement of certain structures), then it might be concluded that the level of risk is unacceptable and possibly quite high.

ADDITIONAL INFORMATION

In early 1974 the County of Ventura entered into an agreement with the State Division of Mines and Geology for the preparation of a Geologic Hazards investigation of Ventura County. This 50/50 matching study of $50,000 will provide additional information relative to the geologic hazards discussed in the Seismic and Safety Elements, upon its completion in June of 1975.

SEISMIC
SAFETY

FAULT DISPLACEMENT

Civilization exists by geological consent,
subject to change without notice.

Will Durant
What is Civilization?

GENERAL DISCUSSION

GENERAL DESCRIPTION

Surface Faulting (D. R. Nichols, U.S. Geological Survey)

The earth is laced with faults - planes or surfaces in earth materials along which failure has occurred and materials on opposite sides have moved relative to one another in response to the accumulation of stress. Most of these faults have not moved for hundreds of thousands or even millions of years and thus can be considered inactive. Others, however, show evidence of current activity or have moved sufficiently recently to be considered active, i.e., capable of displacement in the near future. Any fault movement beneath a building in excess of an inch or two could have catastrophic effects on the structure, depending upon its design and construction, and the shaking stresses it experiences at the same time. Therefore, it is important to know not only which faults may move but how they might move.

The definition of what constitutes an "active fault" may vary greatly according to the type of land use contemplated or to the importance of the structure. For example, the Atomic Energy Commission regards a fault as active or "capable" with respect to nuclear reactor sites if it has moved "at or near the ground surface at least once in the past 35,000 years;" or "more than once in the past 500,000 years" (Atomic Energy Commission, 1971). Commonly, faults are regarded as active and of concern to land-use planning when there is evidence that they have moved during historic time or, through geologic evidence there may be a significant likelihood that they will move during the projected use of a particular structure or piece of land. Because geologic evidence may be lacking, obscure, or ambiguous as to specific times of past movement, geologists may be able to estimate relative degree of activity only after a regional analysis that may extend far beyond the locality under consideration. Such analysis may be based on historic evidence of fault movement, seismic activity (occurrence of small to moderate earthquakes along the fault trace even though not accompanied by obvious fault movement), displacement of recent earth layers (those deposited during the past 10,000 years), and presence of topographically young fault-produced features (scraps, sag ponds, offset stream courses and disruption of man-made features such as fences, curbs, et.) Movement, however, seldom is limited to a single fault surface throughout the lifetime of a fault system. Faults that commonly produce significant displacement (more than several inches at a time) often have related branches that diverge from the main fault but usually have less movement along them. They may also have secondary faults that are not directly or obviously connected physically to the main

fault trace. Secondary faults are usually nearby (within hundreds of feet of the main rupture) but they may extend as much as several miles away. As with branch faults, displacement along secondary faults is usually only a fraction of that along a main fault.

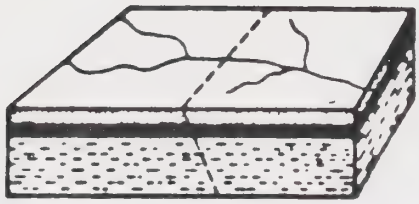
The amount of displacement that can occur during a single earthquake can be related in a general way to the total length of a fault. However, in addition to the location and amount of displacement, the sense of movement is extremely important in estimating the amount and type of damage that might be produced. This was evidenced by the great damage over faults during the moderate (magnitude 6.6) San Fernando Earthquake, which produced a reverse or thrust fault movement. (See Figure 1a). Movement occurred along a similar plane, but in an opposite direction on the normal Wasatch Fault in Utah. (See Figure 1b). Left-lateral movement (Figure 1c) and right-lateral movement, which is common to the San Andreas Fault, probably are less potentially damaging to most structures than normal or thrust faulting.

Not all surface faulting need be rapid nor need it occur during major earthquakes. Imperceptibly slow movement, called "fault creep," occurs along the Hayward, Calaveras, and some other faults, and may be accompanied by microearthquakes. Similarly, not all deformation of the earth's surface produces fault displacements. Strains in the earth deform the rocks until their strength is exceeded and they rupture, producing the earthquake. Accompanying this bending, however, is a certain amount of plastic deformation. Both rupture and plastic deformation commonly occur along active fault zones and may be sufficient to damage or destroy structures over particularly strongly deformed rocks. Earthquakes deep within the earth may result from rupture of deeply buried rocks but without fault displacement at the ground surface, although the surface rocks may be deformed (see Figure 1d). This may have been the case along a part of the Newport-Inglewood Fault zone where movement along the fault during the last 10,000 years or so has merely caused a permanent flexuring or bending of the surface rocks.

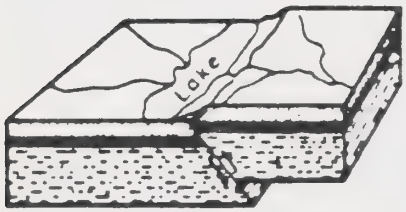
For planning purposes there are two kinds of faults: (1) active faults which have experienced displacement in recent geologic time, suggesting that future displacement can be expected on these faults; and (2) inactive faults that have shown no evidence of movement in recent geologic time, suggesting that these faults are dormant. However, some faults labeled as inactive are so termed due to lack of knowledge. Increased research and monitoring of these faults could reveal some of them as active.

The State Division of Mines and Geology ("Urban Beology," 1973, Bull. 199) indicates that on a state-wide basis the potential hazard to strucutres from the surface displacement of faults

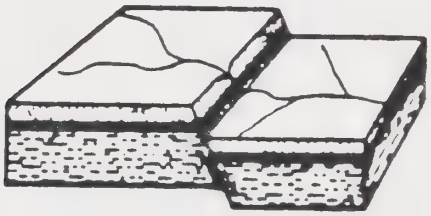
ILLUSTRATION 2.1 EXAMPLES OF SOME TYPES OF FAULT DISPLACEMENT AND EARTH FLEXURE



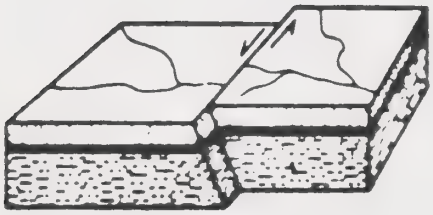
Earth block before movement



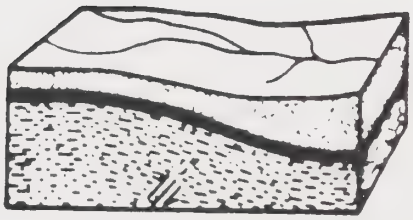
1a Thrust or Reverse fault



1b Normal fault



1c Left lateral fault



1d Monoclinal fold caused by faulting at depth

Source: Tri-Counties Seismic Safety Study, 1973, pg. 68.

is low compared to such geologic phenomena as earthquake shaking and landsliding. Historically, major losses due to fault displacement have been limited to the San Fernando Earthquake of 1971. Structural losses due to fault displacement in the 26 other major earthquakes in California are unknown but were probably small. Most of the losses incurred during the 1906 San Francisco Earthquake and 1952 Tehachapi Earthquake were caused by earthquake shaking and ensuing fires.

GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

Nearly all man-made structures are susceptible to damage ranging from severe to total when affected by displacement along faults passing beneath their foundations. The San Fernando Earthquake of 1971 has shown that no structures designed under present standards are safe from severe damage or destruction as a result of surface fault displacement of foundations. It is widely acknowledged that design of most structures, such as single family homes or larger structures, roads, bridges, pipelines, or other conduits, to resist fault displacement is generally not feasible. Only massive earth structures such as earthfill dams can be designed to remain functional after several feet of displacement along an underlying fault.

Permanent effects of surface displacements along faults also can include:

1. Abrupt elevation or depression of ground surfaces of several feet for distances of many hundreds of feet along the fault

2. Disruption of surface drainage

3. Changes in groundwater levels in wells

4. Blockage and surface seepage of groundwater flow

5. Changes in survey benchmark elevations

6. Dislocations of street alignments and property lines of many feet if lateral (horizontal) displacement also occurs along a fault, etc.

7. Displacement of drainage channels and drains

SECONDARY EFFECTS

Secondary effects of surface displacements along faults within an urban area could include:

1. Disruption of movement along roadways due to abrupt depressions or elevation of pavement surfaces.

2. Possible flooding due to disruption of drainage channel and storm drain flow.

3. Disruption of utility services such as water, gas, fuel, telephone and electric power lines.

4. Temporary impact on industry and commerce similar to that resulting from the occurrence of most kinds of regional natural catastrophic events such as hurricanes or floods.

GENERAL INVENTORY OF THE HAZARD

LOCATION AND HISTORY

The greatest potential for fault activity is along any of the faults which lie within the several major fault systems which transect the County from east to west. The recent San Fernando Earthquake which occurred along one of these major fault systems illustrates the high level of activity that some faults within these systems may have and foretells the future occurrence of other such earthquakes in the Los Angeles, Ventura-Santa Barbara region.

The San Fernando Earthquake of 1971 may be an example of the typical type which could occur along some of the east-west trending gaults which transect the County. Based upon that earthquake, it is most likely that a surface fault displacement within the County will be sudden, occurring over a period of less than one minute. The displacement would be accompanied by sharp earthquake shaking lasting perhaps several tens of seconds.

The following is a description of the major active and potentially active faults and fault systems within Ventura County (refer to Hazards Plate I):

Malibu-Santa Monica-Raymond Fault System

This fault system is believed to consist of a series of major north-dipping thrust faults which extend along the coast and onshore for a total of over 40 miles and perhaps a much greater distance offshore in the Santa Barbara channel. It begins in the San Bernardino area and extends along the southern base of the Santa Monica Mountains and passes offshore a few miles west of Point Dune.

Geologic evidence for activity of the fault system during recent geologic time up through the present are faulted Terrace and near surface sedimentary deposits, groundwater barriers and the recent Point Mugu Earthquake (February, 1973) which is believed to have originated on the Malibu Fault.

The faults within this system are considered active.

Simi-Santa Rosa Fault

This fault is associated with reverse or high angle thrust movement. From the Santa Susana Mountains westward along the northerly margin of the Simi and Tierra Rejada Valleys, along the south slope and crest of the Las Posas Hills to their westerly termination. The presence of the Springville and Camarillo Faults short distances to the north and south, respectively, of the westerly projection of the Simi-Santa Rosa Fault suggest a relationship to these faults which project into the Oxnard Plain along the trend of the subject fault.

Surface evidence north of Simi Valley indicates that at least the easterly portion of this fault has been active during Pleistocene time (11,000 to 3,000,000 years before present). However, available information is considered insufficient to conclude that westerly portions of the Fault have not been active during the Pleistocene or more recent time. No earthquake epicenters of magnitude 4.0 or greater (Richter Scale) have been recorded along the fault during historic time.

The fault is designated as potentially active until more information is available for evaluation.

Bailey Fault

This fault marks the boundary between the western Santa Monica Mountains and the Oxnard Plain. It extends from the Mugu Lagoon area northerly to an apparent intersection with the Camarillo Fault near Calleguas Creek and State Highway 101. The presence of the fault is based primarily upon water well data.

No evidence of surface expression of the fault is known nor have any earthquakes been recorded as having originated on it. The fault trace is obscurred by geologically young alluvium over its entire length. Available information is insufficient to conclude that the fault has not been active during Pleistocene or more recent time.

The fault is designated as potentially active until more information is available for evaluation.

Camarillo Fault

This fault extends in an east-west direction immediately south of Camarillo from Calleguas Creek to the Oxnard Air Force Base. The presence of the fault is based primarily upon the apparent abrupt uplift along the north side of the fault linear uplift of the southern portion of Camarillo.

The apparent uplift of the north side of the fault is believed to be a surface expression of the fault. The fault trace, however, is obscurred by geologically young alluvium over its entire length. Available information is insufficient to conclude that the fault has not been active during Pleistocene or more recent time.

The fault is designated as potentially active until more information is available for evaluation.

Sycamore Canyon and Boney Mountain Faults

These faults are the most prominent of a series of northeast trending breaks extending from the Point Mugu and south coast area to the Thousand Oaks area. The presence of the faults is evident by surface exposures showing displacement of sedimentary and volcanic rocks of pre-Pleistocene age. Younger rocks are not known to have been displaced by these faults.

Surface evidence of displacment of sedimentary and volcanic rocks of pre-Pleistocene age indicate that the faults have been active since despostion of those rocks. Younger rocks are not known to have been displaced by them. However, no specific investigations have been reported indicating that displacement of younger deposits has not occurred. Special areas of concern would be in the Potrero, Conejo, and Hidden Valleys and the Thousand Oaks area.

The faults are designated as potentially active until more information is available for evaluation.

Oak Ridge Fault System

The Oak Ridge Fault is a steeply southerly-dipping reverse or thrust fault which extends from the Santa Susana Mountains where it has been overridden by the north-dipping Santa Susana Thrust Fault, westward along the southerly side of the Santa Clara River Valley and thence into the Oxnard Plain. The relationship of possible westerly extension of the fault to the McGrath and offshore faults is unclear and may be complex. None of the faults beyond the westerly terminus of South Mountains have surface expression nor have any been shown to cut near surface sediments. It is conceivable that past movement of these faults in the Oxnard Plain area has not resulted in surface displacements but, instead, has resulted in only broad warping or tilting of the near surface alluvial sediments.

The Oak Ridge Fault System probably contains many branching faults and is believed to be associated with one or more faults of similar trend present in the Santa Barbara Channel

west of the Oxnard Plain. The system is over 50 miles long on the mainland and may extend an equal or greater distance offshore.

The rugged, steep terrain of the north slope of South Mountain suggests that at least that portion of the Oak Ridge Fault is active. The lack of surface evidence of fault displacement in the Oxnard Plain is not necessarily indicative of past activity in the recent geologic past as surface features could easily have been obscurred by fluvialite processes (erosion or deposition of alluvium). Several recorded earthquake epicenters in the offshore as well as mainland area during historic time may have been associated with the Oak Ridge Fault or others within close proximity and associated with it.

The fault system is considered active. Future information may result in portions being designated as inactive.

Ventura Foothills and Country Club Faults

The Ventura Foothills Fault has been postulated to exist along the base of the hills south of Sulfur Mountain extending from north of Saticoy westerly to the mouth of the Ventura River thence westerly an unknown distance into the Santa Barbara Channel area. The possible existence of this fault as well as the nearby Country Club Fault northerly of Montalvo is reported in "Geology, Seismicity and Environmental Impact." (1973), a special publication of the Association of Engineering Geologists.

Evidence for the existence of the Ventura Foothills Fault is based mainly upon minor faulting of Terrace deposits north of San Buenaventura and evidence of faulting from the Tidewater Oil Company corehole #5. The fault is believed to be north-dipping. The existence of the Country Club Fault is based mainly upon discontinuities of water wells located in the Saticoy vicinity.

At present, sufficient information to verify the presence of past or potential future activity of these faults is lacking.

Future studies will provide information regarding existence and potential activity of these faults. It is considered prudent, however, to acknowledge the presence of these faults and consider them as potentially active, at least until further information is available.

Red Mountain-San Cayetano-Santa Susana-San Fernando Fault System

This fault system consists of a major series of north-dipping thrust faults which extend over 150 miles from Santa Barbara County into Los Angeles County. The system is associated

with an intense zone of folded and faulted bedrock. Relationships within the system become obscure over an 8 mile wide gap between the Red Mountain and San Cayetano Faults where these north-dipping faults give way to several large, south dipping faults.

Geologic evidence that the fault system should be considered active throughout its length is shown by location of earthquake epicenters (including the San Fernando Earthquake of 1971), groundwater barriers, and displaced alluvial sediments. In addition, the unusually high fluid pressures in the Ventura and San Miguelito oil fields are believed to indicate that tectonic stress has accumulated along that section of the fault system between the Red Mountain and San Cayetano Faults. It is possible that continued build up of this stress will eventually result in sudden release, probably in the form of an earthquake resulting from movement along one of more of the faults within the Ventura County portion of the system.

Research has shown that the San Cayetano Fault has 20,000 feet of displacement several miles east of Ojai Valley. The epicenter of an earthquake of magnitude 4.0 to 4.4 (Richter Scale) was located above the San Cayetano Fault between Fillmore and Piru.

The system is considered active.

Lion Mountain-Big Canyon Faults

These faults and several others present in the 8 mile gap between the Red Mountain and San Cayetano Faults dip southerly beneath Sulfer Mountain. The general area is complexly broken and folded by faulting which may be associated with the high fluid pressures (stress) present in the Ventura Oil Field to the south.

Although the general area of these faults has not experienced earthquake activity during historic time, their position within the Red Mountain-San Cayetano-Santa Susana-San Fernando Fault System and the possible displacement of terrace deposits (Pleistocene time) indicates that they should be considered at least potentially active.

Arroyo Parida-Santa Ana Fault

This fault extends from Montecito to the Ventura River and probably along the south side of Ojai Valley. Evidence as to the direction of dip is conflicting.

Although no earthquake activity has been recorded during historic time the fault does apparently form a groundwater barrier in the alluvium beneath the Ventura River. On this basis, it

should be considered potentially active. Future information may require reclassification.

Santa Ynez Fault

This fault extends from Point Conception in Santa Barbara County, across the central portion of Ventura County, to near the east County line. It is considered to be one of the major faults in the region and is about 90 miles long. Past displacement has been about 10,000 feet of relative uplifting of the south side of the fault. The fault lies about 4 miles north of Ojai.

Left lateral displacement of streams crossing this fault has been cited as evidence for recent fault movement. Several earthquake epicenters have been located along this fault and one or two of these were in Ventura County. The strong 1927 earthquake centered west of Point Conception may have originated on the westerly, offshore extension of this fault.

This fault is considered potentially active until additional information is available for evaluation.

Faults Between the Santa Ynez and the North County Line

Several large faults occur in the mountainous area north of the Santa Ynez Fault and within Ventura County. The most significant of these faults are the Tule Creek, Munson Creek, Agua Blanca, Frazer Mountain and Big Pine Faults. Of these the more important appear to be the Pine Mountain Thrust and Big Pine Faults (9 and 16 miles north of Ojai, respectively). The Pine Mountain Thrust is north-dipping and favorably oriented for generating earthquakes in response to the north-south compressive forces which have triggered activity along such similar faults as the Malibu, San Fernando and San Cayetano.

Terrace deposits and stream channels have been offset by geologically recent movement along the Big Pine Fault. More importantly, it is reported to have ruptured the ground surface for a distance of 30 miles along its length during the northern Ventura County earthquakes of November, 1852.

Both of these faults are considered active.

San Andreas Fault

The San Andreas is the longest and most important fault in California. It transects a 4 mile section of the extreme northeast corner of the County, about 27 miles northeast of Ojai. It is the only fault within Ventura County which the

State has designated as being within a Special Studies Zone. Several Special Studies Zones have been established by the State Division of Mines and Geology along several of the major active faults within the State. Development proposed within these zones will require special site investigations prior to approval to insure that structures for human occupancy are not placed over a fault of fault branch. The State anticipates it will establish similar zones along other faults as funds become available for evaluation of potential activity.

Due to clearly established historical earthquake activity; this fault has been designated as active by the State Division of Mines and Geology. The last major earthquake generated along that portion of the fault which transects the northeast portion of the County was in 1857. The earthquake is estimated to have been on the order of magnitude 8.0 (Richter Scale) and would have caused considerable damage to structures in the southern County area had they been there. The occurrence of another such major earthquake along this fault is considered possible within the near future.

DEFINITION OF FAULT HAZARD ZONE

The fault hazard zones define a boundary where active or potentially active faults are believed to be located. These zones, based on available geologic data and the judgment of the County engineering geologist, are plotted on Hazard Plate I. Faults shown on the Fault Hazard Area Map, but not included in either the Primary or Secondary Fault Hazard Areas are presently considered inactive.

The extent of Fault Hazard Zone boundaries are controlled by the traces of potentially active faults which are based on the best data available at the time the map was compiled. However, the faults shown on the maps were not field checked during the compilation of these maps. Because available fault data are highly varied in quality and the locations of some faults are known imprecisely, the zone boundaries have been positioned at a reasonable distance (about 660 feet or an eight of a mile) from the trace of the nearest potentially active fault. However, zone boundaries generally are more or less than 660 feet away from mapped faults because of 1) curved or multiple fault traces, 2) of the need to keep the number of turning points to a reasonable minimum, or 3) the quality of the data dictates a narrower or wider zone.

In many places the zone boundaries have been tentatively extended beyond the mapped limits of faults, such as occurs westerly of Camarillo and westerly of Saticoy. These zone extensions are considered necessary because, even though faults have not been mapped in these areas, it is considered

likely that extensions of known faults or branches of faults do extend into these areas. Future investigations or studies would be required for confirmation of any fault extensions.

The primary fault hazard zones designate areas which are believed to contain active faults. The secondary fault hazard zones include those faults for which less evidence is available concerning their potential for activity. More precise analysis requires further study. For the purpose of the Seismic Safety and Safety Elements, all primary and secondary fault hazard zones designated on Plate I should be considered equivalent to those established by the state for other faults within and outside of the County. No degree of relative potential for future surface displacement or degree of hazard is implied for the faults shown.

A fault is defined as a fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement which may have taken place suddenly and/or by slow creep. A fault zone is a zone of related faults which commonly are braided and subparallel, but may be branching and divergent. It has significant width (with respect to the scale at which the fault is being considered, portrayed, or investigated), ranging from a few feet to several miles.

A fault trace is the line formed by the intersection of a fault and the earth's surface. It is the representation of a fault as depicted on a map.

Any fault considered to have been active during Quaternary time (last 3,000,000 years) - on the basis of evidence of surface displacement - is considered to be potentially active. An exception is a Quaternary fault which is determined, from direct evidence, to have become inactive before Holocene time (last 11,000 years). Such a fault is presumed to be essentially inactive and has been omitted from the map in most cases. Although faults shown on the maps may have been active during any part of, or throughout, Quaternary time, evidence for the recency of displacement is incompletely preserved and often is equivocal. In contrast, the State Mining and Geology Board, in their Policies and Criteria (adopted November 21, 1973), has defined any fault which has had surface displacement within Holocene time as "active and hence as constituting a potential hazard."

The following geologic time scale is provided for reference and perspective:

ILLUSTRATION 2.2 GEOLOGIC TIME SCALE
(abbreviated)

Geologic Age			Years before present (estimated)
Era	Period	Epoch	
CENOZOIC	QUATERNARY	"Historic"	200
		HOLOCENE	11,000
		PLEISTOCENE	2,000,000
	TERTIARY	PLIOCENE	3,000,000
		pre-PLIOCENE	7,000,000 10,000,000
pre-CENOZOIC time			65,000,000
Beginning of geologic time			4,600,000,000

Faults defined as active by Policies & Criteria of the State Mining & Geology Board.

Faults defined as potentially active for the purpose of delineating special studies zones.

Source: State Mining and Geology Board

Uses and Limitations of the Hazard Zones

The best use of the fault zones is to define those areas within the zone as areas where special studies would be required prior to building structures for human occupancy. Such a criteria may require a developer or builder to evaluate specific sites within the zone to determine if a potential hazard from any fault whether heretofore recognized or not, exists with regard to proposed structures and their occupants.

Such studies should be required both for Primary and Secondary Fault zones. The latter should be included since future studies of these secondary zones could result in the redesignation of some of these to primary fault zones.

Users of the map should be fully aware that the zones are delineated to define those areas within which special studies may be required prior to building structures for human occupancy. Traces of potentially active faults are shown on the

maps mainly to justify the locations of zone boundaries. These fault traces are plotted as accurately as the sources of data permit; yet the plots are not sufficiently accurate to be used as the basis for set-back requirements.

Potentially active faults have been identified in a broad sense, although the evidence for the potential activity of some faults may be only weak or indirect.

The fault information shown on the map is not sufficient to meet the requirement for special studies. The onus is on the local governmental units to require the developer to evaluate specific sites within the special studies zones to determine if a potential hazard from any fault, whether heretofore recognized or not, exists with regard to proposed structures and their occupants.

Secondary Fault Hazard Zones designate areas which may contain faults which should be considered potentially active. Future studies as well as experience could result in redesignation of some of these areas to Primary Fault Hazard Zones. Special studies, as required for Primary Fault Hazard Zones, should therefore continue to be required prior to approval of residential or other proposed permanent development within the Secondary Fault Hazard Zones.

Faults shown on the Fault Hazard Area map but not included in either the Primary or Secondary Fault Hazard Areas are presently considered inactive. In general, they are not considered to be associated with the major, regional, potentially active fault zone trends. Special studies should, however, continue to be made of such faults prior to approval of any individual residential or other permanent developments which may be proposed over or in the near vicinity of any known faults.

Special Studies Zones

In 1972 the California State Legislature enacted the Alquist-Priolo Geologic Hazard Zones Act. Pursuant to this act the "State geologist shall delineate . . . special studies zones to encompass all potentially and recently active traces of the San Andreas, Calaveras, Hayward, and San Jacinto Faults, and such other faults . . . as to constitute a potential hazard to structures from surface faulting or fault creep." (Alquist-Priolo Act).

The extreme northeast corner of Ventura County lies within the special study zone established for the San Andreas Fault transecting that area. It is anticipated that the State will, after appropriate evaluation, establish other such special studies zones along other faults transecting the county.

The intent of the zone is to provide for public safety from the hazard of fault rupture by avoiding, to the extent possible, the construction of structures for human occupancy astride hazardous faults. However, the precise location and identification of hazardous faults within or near a zone of potentially active faults can be determined only through detailed geologic investigations. Therefore the State Mining and Geology Board has adopted policies and criteria for the implementation of these zones.

The complete text of the Policies and Criteria is in appendix B. Its most significant criteria is that no structure may be built across the trace of an active fault. Furthermore, the area within fifty feet of an active fault shall be assumed to be underlain by active branches and therefore, before any structure can be built within the zone, a geologic investigation and submission of a report by a geologist registered by the State of California are required. In addition, any city or county may require more restrictive policies.

NATURE OF INFORMATION

The geologic information relating to the location of faults and their potential for activity is based largely upon past regional geologic studies conducted by universities and petroleum geologists, as well as information compiled by the State Division of Mines and Geology and the County Department of Public Works. The most recent geologic information used was that covering the south half of the County which is contained in a report entitled "Geology and Mineral Resources Study of Southern Ventura County," Preliminary Report 14, 1973, prepared by the Division of Mines and Geology in cooperation with the County of Ventura Department of Public Works.

The evaluative system utilized in estimating the potential or past activity of individual faults and fault systems is discussed under General Inventory of the Hazard. The basis and method of designation of the Fault Hazard Zones is similar to that used by the State Division of Mines and Geology in establishing the Special Study Zones along active and potentially active faults within the State (see FAULT HAZARD ZONES section.)

The current cooperative Geologic Hazards Investigation being conducted by the State Division of Mines and Geology for the Ventura County area will provide additional necessary information for future up dating of the Seismic Safety and Safety Elements. The State investigation will be especially useful for improving our knowledge of those faults and fault systems which have been herein designated as potentially active (Secondary Fault Zones). The investigation may include study of

the following faults and fault systems: Simi-Santa Rosa, Springville, Camarillo, Oak Ridge, Ventura Foothills, Country Club, Bailey, Arroyo Parida-Santa Ana and the Big Pine.

GENERAL MANAGEMENT RESPONSIBILITY

Investigation

Research and experience dealing with the nature and mechanism of faults and fault activity is being conducted by various Federal and State agencies as well as by universities and professional organizations. Much of this work is being conducted on a statewide basis, however, indirect benefit to Ventura County will be gained through developed technology.

The State Division of Mines and Geology is currently investigating the extent of the hazard to Ventura County as part of the cooperative Geologic Hazards Investigation scheduled for completion by July of 1975.

Additional investigation is being conducted on a continuing basis by:

Private Geologic Consultants who provide original information during investigations for private developments.

Ventura County Department of Public Works which:

a) Provides review and evaluation of Geologic and Soils and Foundation Engineering reports prepared for private projects within the unincorporated area and for the Cities of Camarillo, Simi Valley and Santa Paula.

b) Performs Geologic and Soils Engineering investigations for County projects such as roads and flood control facilities.

c) Coordinates, evaluates, and compiles geologic information derived from public and private investigations within the unincorporated areas and for the Cities of Camarillo, Simi Valley and Santa Paula.

Warning

Presently there is no way to prevent or accurately predict when an earthquake and surface displacement is apt to occur

along a given fault. The state-of-the-art is such that at best only the recency of past activity can be determined along some faults. In addition, in some cases, regional studies can indicate those systems of faults which may be potentially most active. In the southern California area, those faults which have general east-west trends or are associated with the northwesterly trending San Andreas Fault are considered to be potentially the most active. There are indications that earthquake prediction will be possible in some areas of the United States in the near future. It is not known whether this will be one of those areas. However, there are serious social and economic problems with predicting earthquakes that must be evaluated before these predictions can be utilized, when they are perfected. The National Science Foundation is presently instituting studies on these problems.

Alleviation

Regulation of public and private land development within both incorporated and unincorporated areas is administered by:

City and County Departments of
- Planning
- Public Works
- Building & Safety

City Councils
Board of Supervisors

Enforcement of the Uniform Building Code and City and County regulations and policies can be effected by the above agencies through requirement of review of proposed land use and evaluation of investigations and engineering studies for private development of public projects. Such reviews and evaluations can be performed by qualified geologic and soils engineering staff or by retention of consultants. Effective control of the Fault Hazard can only be achieved through knowledge of the location and potential for activity of faults and implementation of development controls within the hazard zones.

Since alleviation of the hazard is largely accomplished through land use controls, the agencies, departments and legislative bodies making land use decisions have the primary responsibility for alleviating the hazard. City and County Planning departments can utilize available hazard information to avoid improper land uses. Decisions concerning adoption of these recommendations rest ultimately with the Planning Commissions, City Councils and the Board of Supervisors. Other bodies making land use decisions include Port Districts and redevelopment agencies.

Alleviation of existing hazards can be effected by removal of structures located over, or strengthening structures in

hazardous proximity to, potentially active faults. Determination of whether structures are hazardously located would require detailed investigation of geologic conditions and of the potential for activity along any faults found.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

Until recently the geology of the Ventura area has been thought to be rather simple. The only known faulting was that which had been mapped in the Montalvo area and the east-west trending Oak Ridge and McGrath Faults near the Santa Clara River based upon oil well and water well data. In the last few years, however, additional faults have been postulated north of Montalvo near the base of the Ventura Hills along the north boundary of the city. Investigations by trenching suggest that none of the faults were found to have displaced either the ground surface or near surface earth materials. Also, in several recent investigations no evidence was found to indicate the degree of activity or potential for future displacement of ground surfaces.

The Oak Ridge Fault is considered to be a major fault system, probably consisting of more than one fault in the south Ventura area. A possible fault encountered by an exploratory water well at a depth of about 600 feet beneath the proposed County Government Center may have been one such branch of the Oak Ridge system. Careful trenching of surface materials on the site to a depth representing materials of 6,000 to 12,000 years since deposition revealed no displacement by the fault. The location of the Oak Ridge Fault, as shown on Plate I (Geologic Map of Southern Ventura County) is based mainly upon deep subsurface data from oil well explotation.

The McGrath Fault is located about one mile south of the Oak Ridge Fault and immediately south of the Montalvo area. Its location is also based upon deep subsurface exploratory oil well logs.

A suggested fault trace has been mapped near the base of the Ventura Foothills north of Telegraph Road. The evidence for this trace is mainly from topographic expression in aerial photographs.

Recent groundwater studies suggest the presence of a fault extending from south of Saticoy to the mouth of Arundell Barranca. The information was not, however, sufficiently conclusive to confirm the location of the fault. It has been referred to as the Country Club Fault.

An evaluation of the possible geologic structure and location of faults is given in a paper published in the Association of Engineering Geologists Special Publication entitled, "Geology, Seismicity and Environmental Impact" (October, 1973). The information should be understood to be preliminary in

nature and not based upon entirely conclusive evidence. It should, however, be considered in future seismic investigations or studies conducted in the area.

No earthquakes of significant magnitude (4.0 or greater on the Richter Scale) have been recorded on any of the faults mapped or postulated within the Ventura Area during historic time. Several shocks of greater than 4.0 magnitude have been centered in the Santa Barbara Channel to the west along possible extensions of the Oak Ridge Fault system. Several shocks of less than 4.0 magnitude have occurred in the vicinity of Ventura but it is unknown what faults they could have originated on.

None of the known or postulated faults exhibit surface expressions, such as low scarps or deflection of surface drainage, that would indicate surface movement during the recent geologic past (11,000 years or less before present time). It is conceivable, however, that such features could have been obscurred by erosion or deposition of alluvium. None of the faults have been found to displace surface or near surface earth materials where investigations have been performed. Local investigations have been performed along a possible branch of the Oak Ridge Fault (about one mile north of Montalvo) and along the postulated Ventura Foothills Fault (east Ventura).

LOCAL RESOURCES AFFECTED BY THE HAZARD

Most of the City of San Buenaventura lies within the Hazard Zone designated on Hazard Plate I. Many structures including residential, industrial, commercial and public buildings could be affected. Present information is not adequate, however, to determine whether any structures or facilities are definitely underlain by active faults.

The following resources inventoried for the City of San Buenaventura may be of significant concern in a time of disaster. They include schools, hospitals, city halls, police and fire stations, major buildings, major utility lines, uses which may create a potentially hazardous condition, (oil plants and storage facilities) and uses which are located on any possible fault itself.

The secondary zone of the Oak Ridge fault encompasses nearly all of the City of San Buenaventura. Almost the entire number of schools in the City are within the hazard zone. Only De Anza Junior High, E. P. Foster and Sheridan Way Schools located in the Ventura Avenue area are outside of the fault zone.

The two hospitals, Community and the County General, in San Buenaventura are located within the hazard zone as well as the City Hall at the end of California Street.

Fire and Police Stations located on Telephone, Telegraph, Thompson, Santa Clara and Garden Streets are within the hazard zone.

There are several large buildings and shopping centers within the fault zone which may create a secondary hazard in itself and/or may contain large numbers of people. Buildings included are the Holiday Inn, a large old apartment building on the corner of Palm and Santa Clara Street, the grandstands at the Fairgrounds and high school and college auditoriums. The Buenaventura Fashion Center and Marina Village Shopping Center are commercial centers that are also located within the zone.

Major gas, water, sewer and electrical facilities are located within the Oak Ridge fault zones. Sewer facilities include the pump station at the mouth of the Ventura River, a major interceptor connecting that station with the Ventura Waste Treatment Plant, the Ventura and Saticoy waste treatment facilities and all sewer mains except in the Ventura Avenue area north of Park Row Drive. All major water and gas mains within the City including two water pump stations at Seaward and Thompson Avenue are also located within the fault zone. Major power transmission lines from Mandalay power generating plant to the Santa Clara transmission substation also pass through the fault zone.

Oil storage facilities near the Ventura Fairgrounds may create a hazardous condition in the event of a major earthquake.

Major facilities which are located directly on a fault included the Ventura Marina, Ventura County Mental Health Facilities, Ventura County General Hospital, Loma Vista and Montalvo Schools plus residential areas in various portions of the City.

FINDINGS

PROBABILITY OF OCCURRENCE

The actual level of the hazard from fault displacement within Ventura is unknown. At present the potentially highest hazard areas are those along the faults shown on Hazard Plate I. The broad Secondary Fault Hazard Zone indicated on the plate reflects the abundance of speculatory geologic information concerning the area and lack of "hard facts" concerning the possible geologic conditions.

SEVERITY OF THE HAZARD

Although experience has shown that destruction of structures placed over faults along which sudden surface displacement occurs is nearly total, historically only on one occasion has surface displacement significantly affected development (San Fernando Earthquake of 1971). Although this hazard is considered real within the County, the effect of the hazard is low compared to the likelihood of greater losses which could occur as a result of strong earthquake shaking.

RESOURCES AFFECTED

As indicated by comparison of Hazard Plate I with present land uses, many structures are located within the hazard zone. However, additional information concerning the possible presence and location of active faults within the City is necessary to determine the exact location and level of the hazard.

NATURE OF THE INFORMATION

Present information is not considered sufficiently accurate to warrant special investigation for most existing development. Consideration should be given, however, to the safety of vital or emergency facilities over or near known faults. Future, more detailed information on fault locations may indicate that further evaluation of some existing structures or facilities is warranted.

SEISMIC SAFETY

EARTHQUAKES & GROUND SHAKING

Oft the teeming earth
Is with a kind of colic pinched and vex'd
By the imprisoning of unruly wind
Within her womb; which for enlargement striving
Shakes the bedlam earth and topples down
Steeples and moss-grown towers.

Shakespeare
HENRY IV

GENERAL DISCUSSION

GENERAL DESCRIPTION

By far the greatest damage done by an earthquake is caused by the ground shaking, not the fault displacement. This section, therefore, is the companion section to the fault displacement hazard section. One of the very serious side effects of ground shaking is liquefaction, it is also covered as a separate hazard.

The probability of an earthquake is determined by a number of factors but basically by the location of active faults to an area and the tensional and compressional forces exerted against these faults.

California is interlaced with hundreds of active faults. The most important system is the San Andreas Fault which extends from south of Los Angeles to north of San Francisco. The main branch of this fault runs through the extreme northeast corner of Ventura County. This fault has been responsible for at least two major earthquakes; the San Francisco earthquake of 1906 and the Fort Tejon earthquake of 1857. The earthquake of 1857 is reported to have caused severe shaking in the, then undeveloped, southern portion of Ventura County.

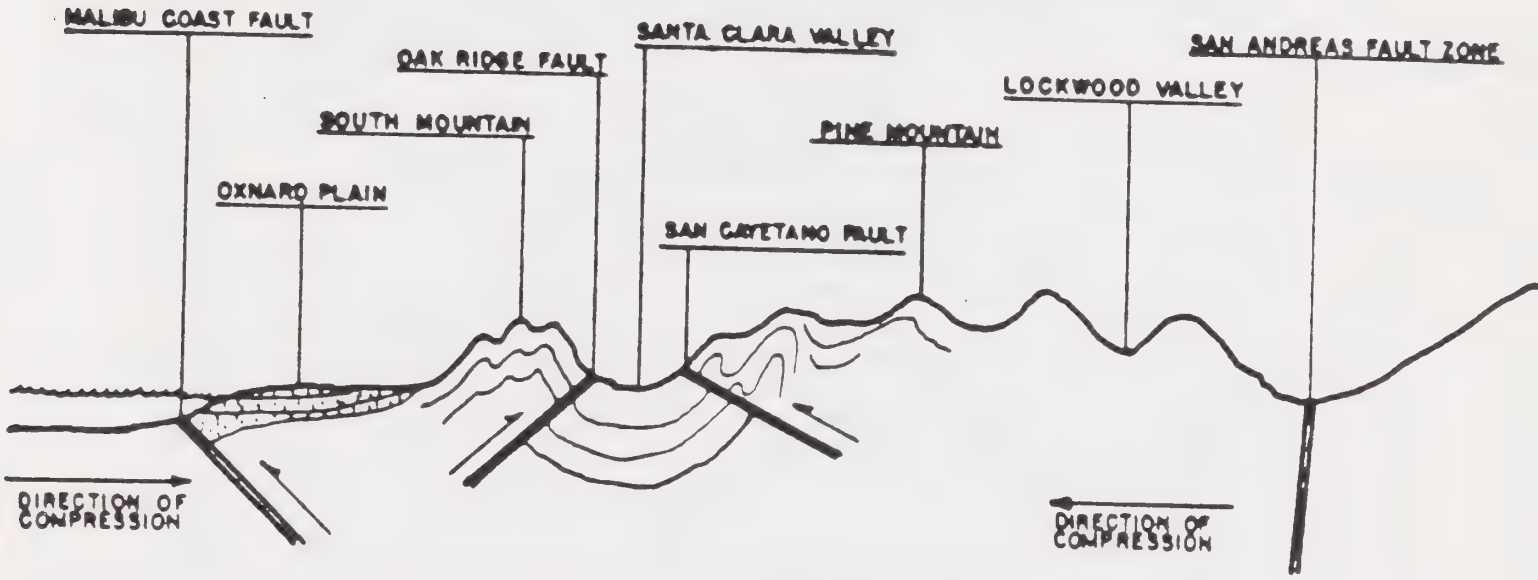
In addition to the forces causing horizontal movement such as that predominant along the San Andreas Fault, Ventura County and portions of adjacent areas are subject to compressional forces acting in north-south directions. These latter forces tend to compress or try to shorten the distance from the San Andreas Fault south to the coast. The San Fernando Earthquake of 1971, resulting in the thrusting of the southern margin of the San Gabriel Mountains several feet southward over the north margin of the San Fernando Valley, was caused by these compressional forces. Several faults in Ventura County have been formed by and are related to these same forces (See Illustration 3.1). These fault systems are described in the Fault Displacement Hazard section.

When an earthquake occurs, the break along the fault plane begins in a small area and rapidly propagates out along the fault planes. The point of first release of stress located below the earth's surface on the fault plane is called the earthquake focus. The point at the earth's surface vertically above the focus is the epicenter.

When a fault breaks, all of the accumulated strain energy is released as seismic waves. These waves travel

outward in all directions from the earthquake focus. Seismograms (records of earthquake motion) indicate that several kinds of motions are created by the passage of seismic waves. These motions can be classified as: Longitudinal Waves, Shear Waves, Rayleigh Waves, and Love Waves. Illustration 3.1 is a summary of the names and properties of the various types of seismic waves.

Illustration 3.1
A simplified north-south cross section showing the relationship of thrust faulting to presently active compressional forces.



SOURCE: Ventura County Public Works

Each of these waves has different types and directions of movement. Each can affect buildings slightly differently depending on many diverse variables. The combined effect of these waves makes up the ground shaking component of an earthquake.

In general, research of many past earthquakes indicates that the intensity of ground shaking at any given location during an earthquake is a function of several factors including:

1. Magnitude of the earthquake
2. Distance from the center
3. Depth at which the earthquake was generated
4. Type of ground motion
5. Geologic structure
6. Type of ground

Of these, the only variable which can be assessed very accurately in advance is the type of ground. Determination of ground response (ground wave motion) can

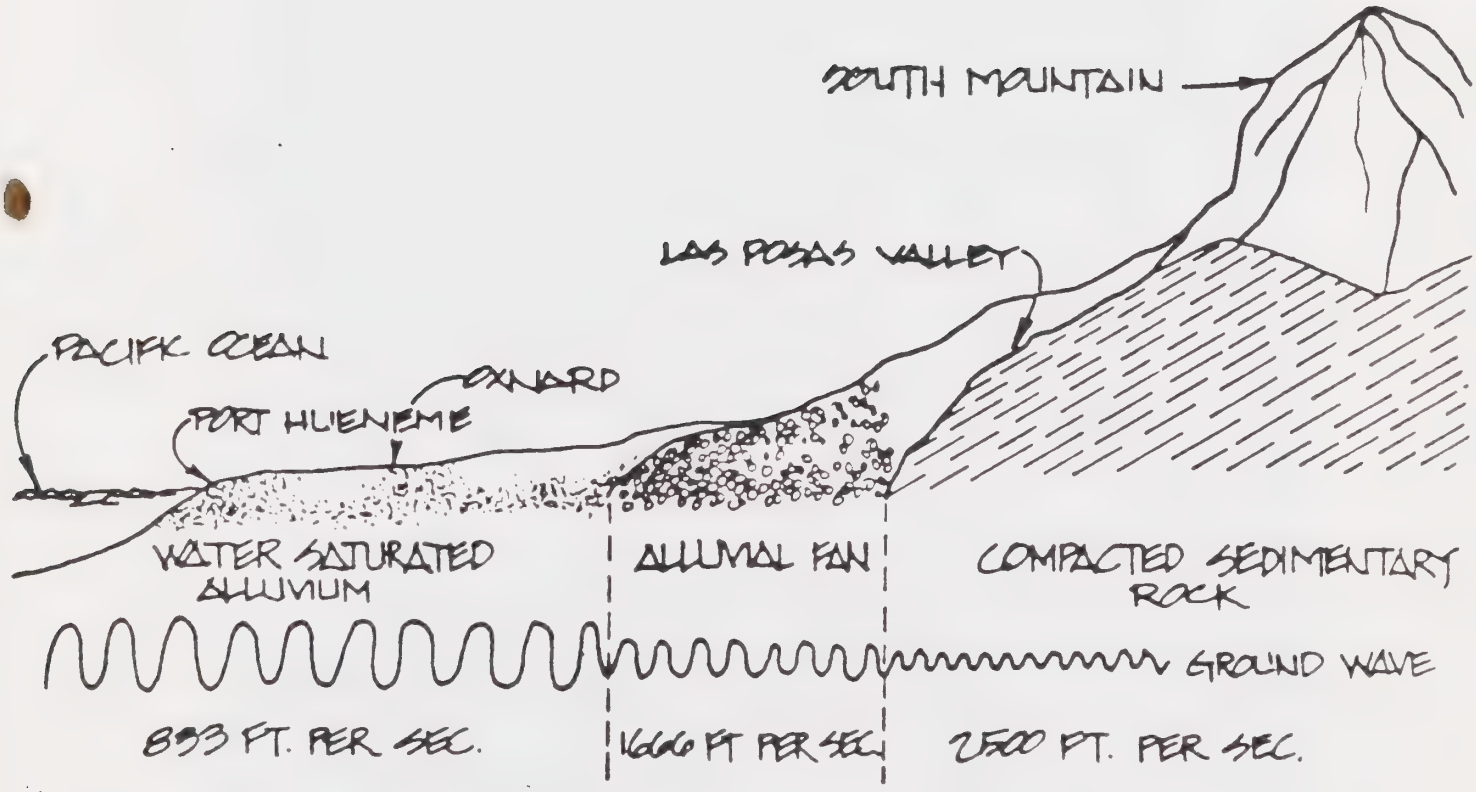
Illustration 3.2

NAMES AND PROPERTIES OF SEISMIC WAVES

Particle Motion Created by Passage of Wave	Synonymous Names of Waves	Standard Letter Designation in Seismology	Names Based on Travel Paths in Earth
Oscillation along lines in direction of wave travel	Longitudinal waves Compressional waves Push-pull waves Sound waves	P (for Primary)	Body waves
Oscillation along lines at right angles to direction of wave travel	Shear waves Transverse waves Shake waves	S (for Secondary)	
Around in circles lying in vertical planes; in same direction as wave advance under troughs, in opposite direction under crests	Rayleigh waves	L (for Large)	Surface waves
Oscillation at right angles to direction of wave travel along lines lying in horizontal planes	Love waves		

Source: Longwell and Others, 1969, p. 432.

Illustration 3.3 Change in speed of ground wave as it enters different materials, with a concurrent increase in amplitude.



be estimated based largely upon existing earthquake records, though only for a predicted location and magnitude of an earthquake.

The intensity of ground shaking during an earthquake depends in large part on geologic foundation conditions, i.e., the thickness and physical properties of the materials comprising the upper several hundred feet beneath the area. In general, the greatest amplitudes and longest durations of ground shaking usually occur on thick, water-saturated, unconsolidated alluvial sediments. Recent studies of groundmotion in San Francisco generated by underground nuclear explosions in Nevada indicated that the peak groundmotion velocities were as much as 10 times larger on soils adjacent to the bay than on nearby bedrock.

Illustration 3.3 is a diagram of the area from South Mountain near Fillmore to Port Hueneme which shows the slowing down of the ground wave as it passes from consolidated sedimentary rocks on South Mountain to the alluvial fan materials of the Las Posas Valley along with a corresponding increase in wave amplitude. An increase in wave amplitude generally means an increase in intensity of ground shaking. There is even a more marked decrease in speed and increase in amplitude between the alluvial fan materials of the Las Posas Valley and the water saturated sediments of the Oxnard Plain.

Two separate indexes, or scales are commonly used in the United States in describing seismic or earthquake disturbances. The qualitative rating of the degree of earthquake shaking based upon feeling and visual observation is indicated by an intensity scale. The size or energy release of earthquakes is measured by a magnitude scale.

Measurement of the radiated energy released by an earthquake was originally proposed by C.F. Richter in 1932 and utilizes a system of tables and charts to deduce from seismological instruments a method of measuring the magnitude of an earthquake. The magnitude assigns a number to the calculated energy release, this system can rank earthquakes and compare them one to the other. By this method, an earthquake is rated independently of the place of observation.

The magnitude is the logarithm (base 10) of the maximum amplitude of a seismogram referred to a distance of 100 kilometers (62 miles) from the epicenter. Under this system, an increase of one unit in magnitude is equal to 32 times the next lower degree of energy release. Thus an earthquake of magnitude 7 represents about 32 times as much energy release as one of magnitude 6;

magnitude 8 represents 32 times the energy of magnitude 7 and, therefore, about (32 X 32) 1000 times the energy of magnitude 6.

The other index is much more of a reflection of the damage caused by ground shaking as it measures effects. It varies from place to place, not necessarily in direct relationship to the distance from the earthquake. The intensity is more or less independent of the magnitude.

The scale used to measure the intensity of an earthquake is the Modified Mercalli Scale with intensities ranging from I to XII (See Illustration 3.4). The scale is a description of the physical effects of earthquakes. The lowest intensity ratings are based on human reactions, such as "felt indoors by few." The highest intensities are measured by geologic effects, such as "broad fissures in wet ground, numerous and extensive landslides, and major surface faulting." The middle intensity range is based largely on the degree of damage to buildings and other man-made structures. Intensity ratings are based on visual observation and are not measured with instruments. The degree of intensity varies from place to place during an earthquake. Specific locations in an area may have an intensity rating of VIII because of soil conditions, structural design, or distance from field epicenter. Intensity scales have generally been replaced by more quantitative measures such as the magnitude scale and ground response based upon seismograph or accelograph records.

An important factor affecting the degree of damage to structures during an earthquake is the frequency characteristics of groundmotion as related to the fundamentl periods of vibration of the structure. For sites such as the plain area which are underlain by deep deposits of unconsolidated alluvium, the peak values of the acceleration response spectra tend to occur at high values of the fundamental period, resulting in high (damaging) accelerations being induced in flexible structures such as multi-story buildings. The reverse is true of the area underlain by firm bedrock, i.e., the high accelerations would be induced in rigid structures such as reinforced buildings of only a few stories in height.

In general, the greatest damage to tall structures results where they are built over thick, soft, water-saturated sediments. The least damage occurs where they are built on very firm bedrock. The structural integrity of buildings before the earthquake and whether the natural vibration period of the structure is coincident to that of the ground are both factors that complicate these general concepts.

When the building and the ground approach the same vibration period, the greatest damage is likely to occur. The predominant vibration period of a building can be related in a very general wav with its height or number of stories. Taller buildings have a longer predominant vibration period (2 or more seconds). Therefore, they are subject to greater damage where they occur on ground with a longer predominant vibration period (thick, water-saturated sediments). Conversely, 1 or 2 story buildings with short predominant vibration periods on firmer ground may be in trouble. Other factors which contribute to damage potential, such as magnitude, distance, frequency and duration of a particular earthquake, influence the predominant vibration period. For the Ventura County area, unfortunately, none of the factors are predictable with any great degree of confidence.

Intense ground shaking in areas of unconsolidated, water-bearing sediments (alluvium) or wet soils could also result in soil liquifaction, ground rupture, lurching, slumping and lateral movement of nearly level areas and landsliding. The greatest hazard of gound failure in hillside areas is in the form of landsliding and other slope failures. Seismic shaking can renew movement of old landslides as well as result in formation of new slides. Many of the existing landslide features may have been triggered by past earthquake shaking. The combination of relatively weak bedrock, deep weathering, steep slopes and inclined bedding combine to make many areas highly susceptible to landslide failure during seismic shaking.

Illustration 3.4

MODIFIED MERCALLI SCALE OF EARTHQUAKE INTENSITIES

THE MERCALLI INTENSITY SCALE

(As modified by Charles F. Richter in 1956 and rearranged)

If most of these effects are observed — *then the intensity is*

Earthquake shaking not felt. But people may observe marginal effects of large distance earthquakes without identifying these effects as earthquake-caused. Among them: trees, structures, liquids, bodies of water sway slowly, or doors swing slowly ..... *I*

Effect on people. Shaking felt by those at rest, especially if they are indoors, and by those on upper floors ..... *II*

Effect on people. Felt by most people indoors. Some can estimate duration of shaking. But many may not recognize shaking of building as caused by an earthquake. The shaking is like that caused by the passing of light trucks ..... *III*

Other effects. Hanging objects swing.

Structural effects. Windows or doors rattle. Wooden walls and frames creak ..... *IV*

Effect on people. Felt by everyone indoors. Many estimate duration of shaking. But they still may not recognize it as caused by an earthquake. The shaking is like that caused by the passing of heavy trucks, though sometimes instead people may feel the sensation of a jolt, as if a heavy ball had struck the walls.

Other effects. Hanging objects swing. Standing autos rock. Crockery clashes, dishes rattle, or glasses clink.

Structural effects. Doors close, open, or swing. Windows rattle ..... *V*

Effect on people. Felt by everyone indoors and by most people outdoors. Many now estimate not only the duration of shaking but also its direction and have no doubt as to its cause. Sleepers wakened.

Other effects. Hanging objects swing. Shutters or pictures move. Pendulum clocks stop, start, or change rate. Standing autos rock. Crockery clashes, dishes rattle, or glasses clink. Liquids disturbed, some spilled. Small unstable objects displaced or upset.

Structural effects. Weak plaster and Masonry D* crack. Windows break. Doors close, open, or swing ..... *VI*

Effect on people. Felt by everyone. Many are frightened and run outdoors. People walk unsteadily.

Other effects. Small church or school bells ring. Pictures thrown off walls, knickknacks and books off shelves. Dishes or glasses broken. Furniture moved or overturned. Trees, bushes shaken visibly, or heard to rustle.

Structural effects. Masonry D* damaged, some cracks in Masonry C*. Weak chimneys break at roof line. Plaster, loose bricks, stones, tiles, cornices, unbraced parapets and architectural ornaments fall. Concrete irrigation ditches damaged ..... *VII*

Effect on people. Difficult to stand. Shaking noticed by auto drivers.

If most of these effects are observed — *then the intensity is*

Other effects. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Furniture broken. Hanging objects quiver.

Structural effects. Masonry D* heavily damaged. Masonry C* damaged, partially collapses in some cases, some damage to Masonry B*, none to Masonry A*. Stucco and some masonry walls fall. Chimneys, factory stacks, monuments, towers, elevated tanks twist or fall. Frame houses moved on foundations if not bolted down, loose panel walls thrown out. Decayed piling broken off ..... *VIII*

Effect on people. General fright. People thrown to ground.

Other effects. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. Steering of autos affected. Branches broken from trees.

Structural effects. Masonry D* destroyed; Masonry C* heavily damaged, sometimes with complete collapse; Masonry B* is seriously damaged. General damage to foundations. Frame structures, if not bolted, shifted off foundations. Frames racked. Reservoirs seriously damaged. Underground pipes broken ..... *IX*

Effect on people. General panic.

Other effects. Conspicuous cracks in ground. In areas of soft ground sand is ejected through holes and piles up into a sand crater, and in muddy areas water fountains are formed.

Structural effects. Most masonry and frame structures destroyed along with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes and embankments. Railroads bent slightly ..... *X*

Effect on people. General panic.

Other effects. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land.

Structural effects. General destruction of buildings. Underground pipelines completely out of service. Railroads bent greatly ..... *XI*

Effect on people. General panic.

Other effects. Same as for Intensity X.

Structural effects. Damage nearly total, the ultimate catastrophe ..... *XII*

Other effects. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into air.

*Masonry A: Good workmanship and mortar reinforced, designed to resist lateral forces. Masonry B: Good workmanship and mortar reinforced. Masonry C: Good workmanship and mortar unreinforced. Masonry D: Poor workmanship and mortar and weak materials like adobe.

The following are excerpts from a manuscript in preparation by D.R. Nichols, U.S. Geological Survey.

Ground Shaking - Probably the most difficult task today, in terms of the predictive capability of the geologist and seismologist, is devising a reasonably reliable method of predicting "ground shaking" effects --what most people and structures react to during an earthquake. Examination of damage from numerous past earthquakes, in lieu of conclusive strong-motion seismograph records, has suggested to geologists and engineers that the greatest damage to tall structures results where they are built over thick, relatively soft, water-saturated sediments and that the least damage occurs where they are built on very firm bedrock. Although engineers have shown that while great thicknesses of wet unconsolidated sediments may amplify the ground motion, perhaps a more critical measure of damage is a determination of the "predominant period" of the building and of the ground on which it rests. The predominant period of a building can be related in a very general way to its height or number of stories. Taller buildings have a longer predominant period (2 seconds or more). Therefore, they are subject to greater damage where they occur on ground with a longer predominant period (thick, saturated sediments). Conversely, one or two-story buildings with a short predominant period may be in trouble on firmer ground. Further complicating this very generalized picture are a wide variety of other factors that may contribute significantly to a damage potential: magnitude of a particular earthquake, distance and direction from the epicenter and causative fault, duration of shaking and the structural integrity of buildings before the earthquake, and many others. The greatest damage is likely to occur where the predominant ground period is coincident with that of the greatest number of high-rise buildings. However, a prediction of ground shaking at a particular spot or point is subjec to a great variety of conditions, only some of which are predictable with confidence. For example, a magnitude 5 earthquake on the San Andreas Fault at Hollister may have the same damage pattern at a particular locality as a more distant 7.5 magnitude earthquake on the Hayward or Calaveras fault.

Ground Failure - Earth materials in a natural condition tend to reach equilibrium over a long period of time. In geologically active areas such as California and Alaska there are many regions where earth materials have not yet reached a natural state of stability. For example, most of the valleys and bay margins are underlain by recent loose materials that have not been compacted and hardened by long-term natural processes. Landslides are common on most of the hills and mountains as loose material moves

downslope. In addition, many activities of man tend to make the earth materials less stable and hence to increase the chance of ground failure. Some of the natural causes of instability are earthquakes, weak materials, stream and coastal erosion, and heavy rainfall. Human activities that contribute to instability include oversteepening of slopes by undercutting them or overloading them with artificial fill, extensive irrigation, poor drainage or even groundwater withdrawal, and removal of stabilizing vegetation. These causes of failure, which normally produce landslides and differential settlement, are augmented during earthquakes by strong ground motions that result in rapid changes in the state of earth materials. It is these changes, by means of liquifaction and loss of strength in fine-grained materials, that result in so many landslides during earthquakes as well as differential settlement, subsidence, ground cracking, ground lurching, and a variety of transient and permanent changes in the ground surface.

Mechanisms of Failure - Liquifaction is a common mechanism causing many types of ground failure. It occurs when strength of saturated, loose, granular materials (silt, sand, or gravel) is drastically reduced, such as may occur during an earthquake. The earthquake-induced deformation transforms a stable granular material into a fluidlike state in which the solid particles are virtually in suspension similar to quicksand. The result, where the liquified materials are in a broad buried layer, may be likened to the action of ball bearings in reducing friction in the movement of one material past another. The Juvenile Hall Landslide during the 1971 San Fernando earthquake resulted from liquifaction of a shallow sand layer and involved an area almost a mile long and a failure surface that had a slope of only 2-1/2percent (Youd, 1971, p. 107, 108). Where the liquified granular layer is thick and occurs at the surface, structures may gradually sink downward. The tilting and sinking of buildings during the Niigata earthquake illustrate this phenomenon.

Results of Ground Failure - Although the basic causes of ground instability are simple in concept, the consequences are often complex and highly variable. They include numerous varieties of landslides, ground cracking, lurching, subsidence, and differential settlement. Moreover, these types of ground failure occur on a wide variety of ground conditions. Landslides, for example, do not require a steep slope on which to form, particularly during earthquakes. Many occur on slopes that are virtually flat, and the surface on which they fail may be very shallow (1 to 2 feet deep) or as much as hundreds of feet below the ground surface. The type of ground failure that develops in a given area is determined by the nature of the natural or man-made disturbance that occurs and partly by the topographic, geologic, hydrologic, and geotechnical characteristics of the ground.

Ground cracking usually occurs in stiff surface materials and is associated with changes in surface topography or materials. For example, during the 1964 Alaskan earthquake, much of the ground cracking that occurred along river flood plains adjacent and parallel to stream channels and along road and railroad embankments resulted from differential movement owing either to liquifaction or to lateral spreading of a relatively soft, deeper layer under a stiffer surface layer. Cracks may be only hairline or several feet wide and from a few feet to hundreds of feet long.

Ground lurching may be both a transitory and permanent phenomenon. During earthquakes, soft saturated ground may be thrown into undulating waves that may or may not remain when the ground motion ceases. The same or similar ground surface appearance may also result from permanent differential settlement of the ground, which can be caused by loss of soil strength or by liquifaction. Commonly, the water freed by liquifaction of buried and confined granular layers is forced to the ground surface, moving laterally toward steep slopes or vertically along the planes of weakness in the overlying layers. As the water moves toward the surface or "free face," it often carries with it some of the sand. Thus, "sand boils," "sand volcanoes," "sand ridges," and similar anomalous features attest to the occurrence of liquifaction. As sand and water are removed from the subsurface, the ground settles, often differentially because the sand and water are seldom removed evenly over broad areas. The resulting effects on buildings can be catastrophic.

Subsidence of as much as several feet mav occur over a broad area underlain by a thick sequence of sedimentary deposits. For example, after the 1906 earthquake, a well casing was reported to have "risen" two feet out of the ground, when, in fact, the ground around it probably liquified or compacted as a result of the shaking. Subsidence is likely to be greatest in areas where there has been withdrawal of fluids (ground water or oil) over a long period of time. Lesser amounts of subsidence can occur even where fluid withdrawal has not taken place, as in the Homer area of Alaska in 1964. Compaction effects may be predicted with some degree of assurance over fairly broad areas (up to 1 or 2 miles) and even on a site basis, expecially when the cause may be liquifaciton.

Tectonic Deformation - Earthquakes may produce major differential vertical and horizontal movements over broad parts of the earth's crust. For example, as a result of the 1964 Alaskan earthquake, between 70,000 and 110,000 square miles of both the sea floor and land in southern Alaska were warped, elevating or depressing them as much as 6 feet; elevation changes locally exceeded 50 feet

(Hansen and others, 1966, p. 17). While the effect of compaction and tectonic subsidence may appear the same locally, the mechanisms differ greatly and the total area affected will be much greater where tectonic deformation occurs. Tectonic land changes result from major movements in the earth's crust, and neither their location nor their magnitude is predictable. Therefore, little can be done to minimize the effects of these changes before they occur.

All of Ventura County lies within the highly active earthquake region of Southern California. Preliminary estimates by R. Greensfelder (California State Division of Mines and Geology, unpublished preliminary research information) indicate that most of Ventura County can be subject to as strong earthquake shaking as can be expected anywhere in California. Only the area of the Santa Monica Mountain is estimated to have slightly less severe ground shaking potential.

GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

The primary effect of ground shaking is the damage or destruction of structures and infrastructures and thus the potential for the loss of life or sustaining injuries. The severity of the effect is dependent on many factors such as the strength and design of the structure to withstand shaking; composition and depth and the geologic structure of underlying earth materials; the presence of free groundwater and the topography. In general, all structures in areas subject to ground shaking will be affected.

Damage to structures during ground shaking can range from minor cracking of plaster to total collapse and or overturning. No structure can be assured to be designed and constructed to withstand damage from a strong earthquake. Some damage, whether it be to the structure or its contents, can be anticipated.

Ground shaking could cause severe damage to most utilities including pipelines, power lines, generating and convertor facilities, roads and bridges, if such structures were not constructed to withstand the shaking. Ground surfaces could rupture, crack and subside up to several feet in areas of unconsolidated alluvium resulting in damage to structures located in these areas.

SECONDARY EFFECTS

As a result of severe shaking and structural failures there are other secondary effects possible. Such effects include:

1. Cost of rehabilitation
2. Disruption of utilities and services for a substantial length of time
3. Seiches
4. Liquefaction
5. Possible sympathetic movement of other faults
6. Temporary and long term psychological effects
7. Adverse affect on the quality of water in ground water aquifers.

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

The hazard exists throughout Ventura County and may significantly increase, wherever there is ground material that could significantly amplify the ground waves of an earthquake and produce high intensity ground shaking. Every place in the surrounding area would be shaken by an earthquake, the area affected would generally be determined by the magnitude of the earthquake. Those areas that might be shaken more than others are in the hazard zones. (Shown on Hazard Plate II).

The highest amplification of ground shaking occurs in areas where the long period wave shaking is greatest, designated as Area A on Hazard Plate II. Basically, this is the Oxnard Plain and the Santa Clara River in the south half of the County and in Lockwood, Cuyama, and Cuddy Valleys in the north half. Areas that could experience some amplification of long period shaking generally surround these areas and extend up the canyons of the major rivers and creeks.

The areas with the greatest amplification of short period shaking are along the base of the hills and in minor river valleys and in the broken bedrock along fault lines such as the San Cayetano and Simi-Santa Rosa Faults. Slight to moderate amplification of short period oscillations may occur on terrace deposits or soft bedrock, which has a thin soil covering. These materials are found in young hill areas such as South Mountain, Oak Ridge, Sulphur Mountain, and the north coastal hill lands and the Piru area in the south half of the County. In the north half these are along the margins of the valley areas such as Hungry and Lockwood Valleys and hill lands north of Cuyama.

HISTORY OF THE HAZARD

Southern Ventura County

The southern County area is considered that portion southerly of the east-west projection of Nordoff Ridge located immediately north of the Ojai Valley. Even though the historic record indicates that no strong earthquakes or surface displacement have occurred along the faults within the southern county area, the likelihood of the occurrence of one or more of such events within 50 to 100 years is not remote. The recent San Fernando earthquake occurred along a fault having little historic record of activity. Several of the faults within the south half of Ventura County, such as the Santa Susanna and San Cayetano, are similar in structure and subject to similar tectonic forces. Crustal deformation resulting in similar earthquakes will likely continue into the indefinite future.

The history of strong earthquakes provides an indication of what will probably occur in the future, however, the record does not provide a statistically sound basis for prediction. It is probable that earthquakes of magnitude 6 and larger will occur in the future within the south half of the county area or in the nearby offshore areas, and it would be consistent with past experience if several such shocks occurred in the next century. Surface displacement associated with the earthquakes is also possible.

The following is a portion of the summary of faulting and seismicity of the southern County area taken from the "Geology and Mineral Resources Study of Southern Ventura County" (1972) prepared by the State Division of Mines and Geology in cooperation with the Ventura County Department of Public Works:

"The earthquake history of Ventura County, particularly of the more populous southern part, is dominated by small to moderate shocks. Many of these shocks have been severe in their local, epicentral areas, but regionally have caused only light damage. No earthquake greater than magnitude 4.7 has been recorded in Ventura County, or the immediate offshore area, since 1934 when adequate instrumental records became available. These relatively minor shocks have caused local damage but no recorded loss of life. A review of the earlier less accurate record from 1769 to 1934 suggests a similar history for the southern County region. More serious than effects from local shocks have been the effects from relatively numerous moderate to large earthquakes whose epicenters are located outside of southern Ventura County. These shocks have caused considerable damage but no recorded loss of life.

Several larger, historic earthquakes are especially important to the evaluation of future seismic risk in

southern Ventura County. On December 21, 1812, an earthquake, probably located offshore south of Santa Barbara, damaged missions from Purisima Concepcion, near Lompoc, to San Fernando on the south. The tower of the San Buenaventura Mission was wrecked and much of the facade had to be rebuilt. This earthquake was accompanied by seismic sea waves which had reported runup heights of 30 to 50 feet between Santa Barbara and Gaviota and 15 feet or more at Ventura (Wood and Heck, 1966). Such waves today would do considerable damage to many parts of the now heavily settled coastal areas of Ventura County.

On January 9, 1857, the great Fort Tejon earthquake, with its epicenter probably on the San Andreas fault, close to the northeast corner of Ventura County, caused significant damage in the southern part of the County. The roof of the Mission Church at San Buenaventura fell in (Townley and Allen, 1939). Six miles from the south of the Santa Clara River the bed of the river was severely cracked. Wood (1955, p. 53) quoted a report describing the cracks as "being six or eight inches across, and extending in a direction SE and NW." Quoting further he said that "on either side of the cracks lay a ridge of wet sand." These cracks were probably due to lurching and liquifaction in the saturated alluvium of this area.

Wood continued, noting:

> *These appearances were visible as far as I could see up and down the bed of the river. Near the mouth of the river the cracks were longer and wider. Persons residing within a mile of the entrance say that the water was thrown out from the cracks as high as six feet, and that large blocks of earth sank several feet below the former level, and there remain.*

A second important earthquake is the June 6, 1925 shock of magnitude 6.3, which destroyed the business section of Santa Barbara and caused some damage in Ventura. An offshore shock on June 30, 1941, magnitude 5.9, cracked some walls and plaster, broke windows and dishes and damaged considerable shelf-stock in some stores in Ventura.

The intensity of shaking reported in much of Ventura County from the February 9, 1971, San Fernando earthquake was sufficient to cause minor damage and to cause breakage of some goods thrown from store shelves. In Santa Susana, some older buildings were severely damaged, with at least one or two razed. At least a few rockfalls and one small bedrock landslide occurred north of Simi Valley in the Tapo Canyon area, just south of the Santa Susana fault. Small displacement occurred on this fault during the

earthquake in the northwestern Sylmar area. The fault extends west, where it joins the Oak Ridge fault and possibly the San Cayetano fault system in the Piru-Oak Ridge area.

The questions, "which faults of southern Ventura County are active or potentially active?" has not been answered fully. The Red Mountain and San Cayetano thrust fault zones, which together nearly span the County (See Hazard Plate I), should be considered active. Holocene and Pleistocene sediments are displaced by the Red Mountain thrust, and similar physiographic features on both the Red Mountain and San Cayetano thrusts, also suggest Holocene displacement. In addition, aerial photos show many ground surface lineaments and other phenomena which may reflect Holocene or later Quaternary faulting, and should be investigated. One alignment near the base of the Ventura Foothills, roughly corresponds to a fault shown in cross section by Ogle (1969), who correlates it with the offshore, Pitas Point fault.

Several reverse faults, which apparently act as barriers to ground water in the alluvial areas, were also probably active during the late Quaternary, as described by California Water Resources Board (1953). These include the Springville fault at the western Simi Valley area, the western Oak Ridge (Saticoy) fault in the Oxnard Plain area, and the Santa Ana fault in the Oak View area (a fault zone which has raised the Upper Ojai Valley relative to Ojai Valley). The Camarillo fault may not act as a ground water barrier, but California Water Resources Board (1953, p. B34) stated that the fault may have offset alluvium.

A problem in southern Ventura County equally as serious as the identification of active or potentially active faults is the problem of identifying the geologic units as to their seismic response characteristics. For example, Richter (1959, p. 143) stated that much of the alluviated area of the Santa Clara Valley and the Ventura basin should expect shaking sufficient to cause considerable damage in specifically designed buildings and great damage to normally substantial buildings. In the eastern part of the Ventura basin this was demonstrated during the San Fernando earthquake. The expected damage to areas where ground water is within 15 feet of the surface could be even greater, but would be relatively less in areas underlain by older alluvium and even less on more indurated or cemented Tertiary rocks. Older landslides may be reactivated or new landslides may originate in some areas of Tertiary rocks of the County during an earthquake. Especially landslide prone is the Pico Formation, and to a lesser extent the Modelo/Monterey and Rincon Formations."

Northern Ventura County

The most important faults in the vicinity of the northern County area are the San Andreas, Big Pine, Garlock, San Gabriel and Frazier Mountain thrust, all of which converge at the northeast corner of Ventura County, and the Santa Ynez in the southern part of the north half of the County. All of these faults except perhaps the Frazier Mountain thrust are considered to be active, i.e., are potential focal points for the occurrence of earthquakes and displacement of the ground surface. Other mapped and unknown faults within the north half may also prove to be active by future displacement or detailed investigations.

Historic Record - Reliable accounts of California earthquakes date from about 1800. Since that year it is estimated that 35 to 40 earthquakes of magnitude 6.0 (Richter Scale) or larger have occurred in southern California. Over 20 of these occurred since 1912. Three of the earthquakes could have caused substantial damage to major structures in the north half had such structures been located there. These three earthquakes were the Northern Ventura County of 1852, Fort Tejon of 1857 and the Kern County of 1952.

The Big Pine fault, a major left-lateral fault with some oblique slip (subject to both horizontal and vertical displacement), may have had measurable movement during historic time. The earthquakes (apparently several) of November 1852 were accompanied by about 30 miles of surface faulting in Lockwood Valley. The exact location of the surface breaks is unknown, but geologic evidence and reports by others indicate that it may have been along the Big Pine Fault. Evidence of young movement along the fault includes scarplets that cut terrace deposits and apparent left-lateral offset of stream channels.

Several other faults found in the Lockwood Valley area have had recent movement by virtue of their cutting of terrace deposits and offset of other faults. These faults range from several hundred to a few thousand feet in length. Some of them indicate the region has recently undergone, and is probably still undergoing, compression along north-south directions.

Future Earthquake Potential - The historic record shows that the north half has experienced several severe shocks originating along faults both within and immediately outside of the area. The geologic record shows that a high level of tectonic activity has continue to the present time.

The history of severe earthquakes provides an indication of what will probably reoccur in the future,

however, the record does not provide a statistically sound basis for prediction. It has been found, however, that the number of large earthquakes that occur in a region is related to the number of small earthquakes.

Movement of the land mass west of the San Andreas fault relative to the east side, has been fairly well substantiated by the geologic record as well as precise surveying, and is about 2 inches per year. That portion of the San Andreas fault immediately north of the County has not shown displacement since 1857 nor has any been reported along the Big Pine or other faults in the north half since 1852.

Geologic and survey evidence indicates that stress is building up along the San Andreas fault to the north. It is just a question of time until the fault in this area again displaces with a high probability that the resulting earthquake will be severe. Prediction of when displacement will occur is not possible at this time, however, it is likely that it will occur within 100 years and possibly much sooner.

Earthquakes and surface displacement originating along faults within the north half is also highly possible, but again, prediction of when is not possible. Determination of the potentially most active faults would require extensive field investigation and was not completed during this study. However, previous studies and published information indicates that many recently active faults may exist within the region. In addition, the apparently active compressional forces which continue to affect the area, as recently reflected by the San Fernando earthquake, provide the means through which future earthquakes could occur along the known as well as other presently unknown, faults within the area.

Since 1852 the northerly portion of the north half has experienced severe shaking probably on the order of XI on the Mercalli Modified Intensity Scale during three earthquakes. One of these may have been centered on the Big Pine Fault during which rupturing of the ground surface occurred. Earthquakes of equal or greater intensity can be expected to affect the area in the future, and it would be consistent with past behavior if at least two such events occurred in the next century. It is likely that at least one of these events will be centered along the nearby San Andreas fault.

A large earthquake (7.0 magnitude or greater) in the vicinity of the north half would cause intense shaking with possible ground deformation and rupturing in valley alluvium, man-made fills and marginally stable hillsides. The resulting damage to structures would be great especially

during the wet season when groundwater is at its highest level of in areas where groundwater is being recharged by lakes or surface irrigation.

It is impossible, based upon the meager available information and experience with earthquake activity in California, to accurately predict the degree of shaking which could result from a great earthquake such as those of the not so distant past which affected the region. However, itis not unreasonable to expect bedrock accelerations of over 1.0g (or equivalent to the acceleration of gravity) and over 45 seconds of maximum shaking duration. The degree of shaking would, of course, be much greater resulting in higher accelerations, in areas underlain by alluvium or valley sediments. Peak bedrock accelerations in the range of 0.5g to 1.0g were recorded during the relatively small San Fernando Earthquake of 1971.

Illustrations 3.5 - 3.7 indicate the approximate number, epicenter and magnitude of earthquakes recorded in the vicinity of Ventura County since 1932.

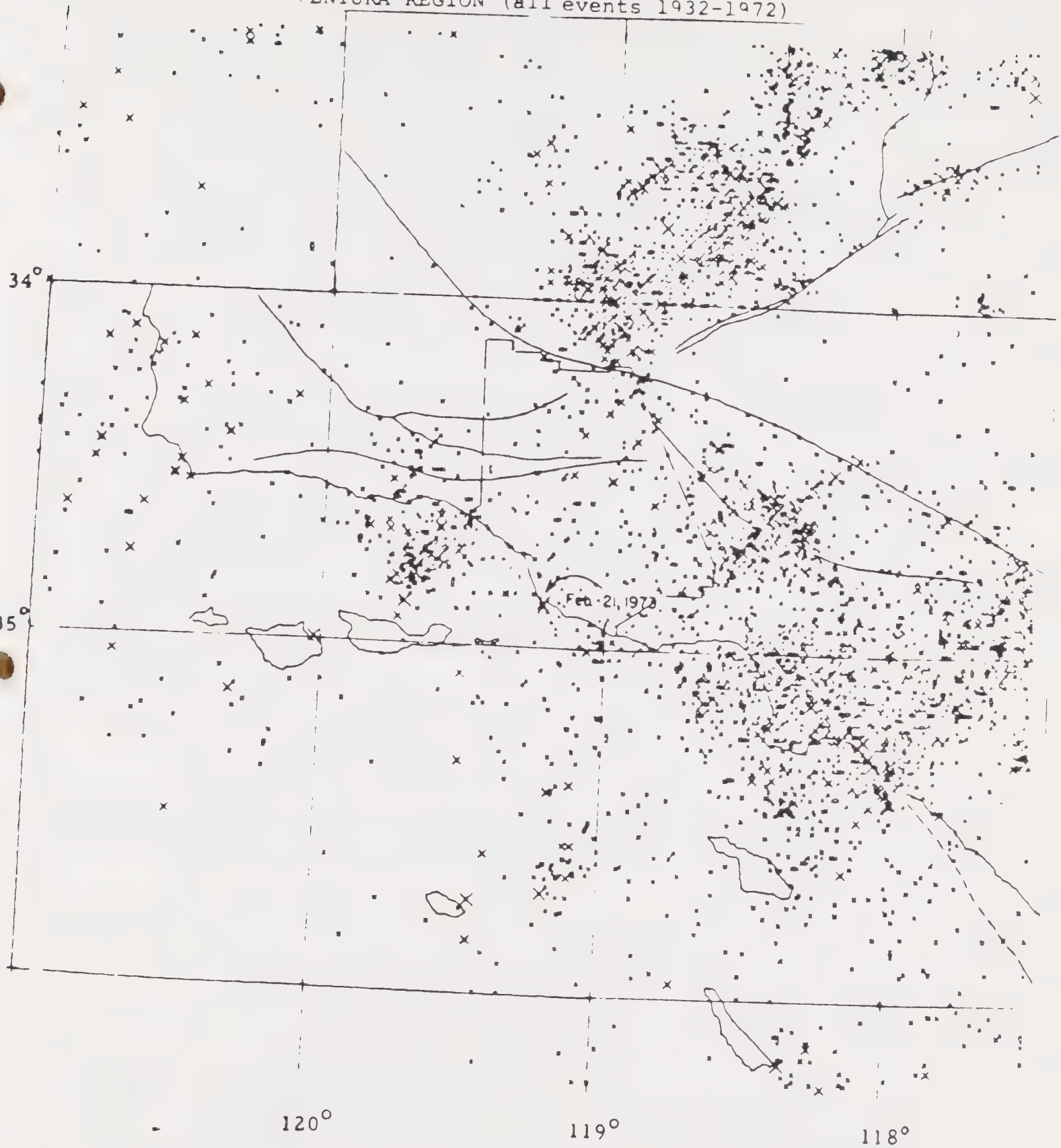
Illustration 3.5
REGIONAL EPICENTER MAP 1932-1971

Note: Earthquakes less than magnitude 4.0 not plotted

0 100 miles

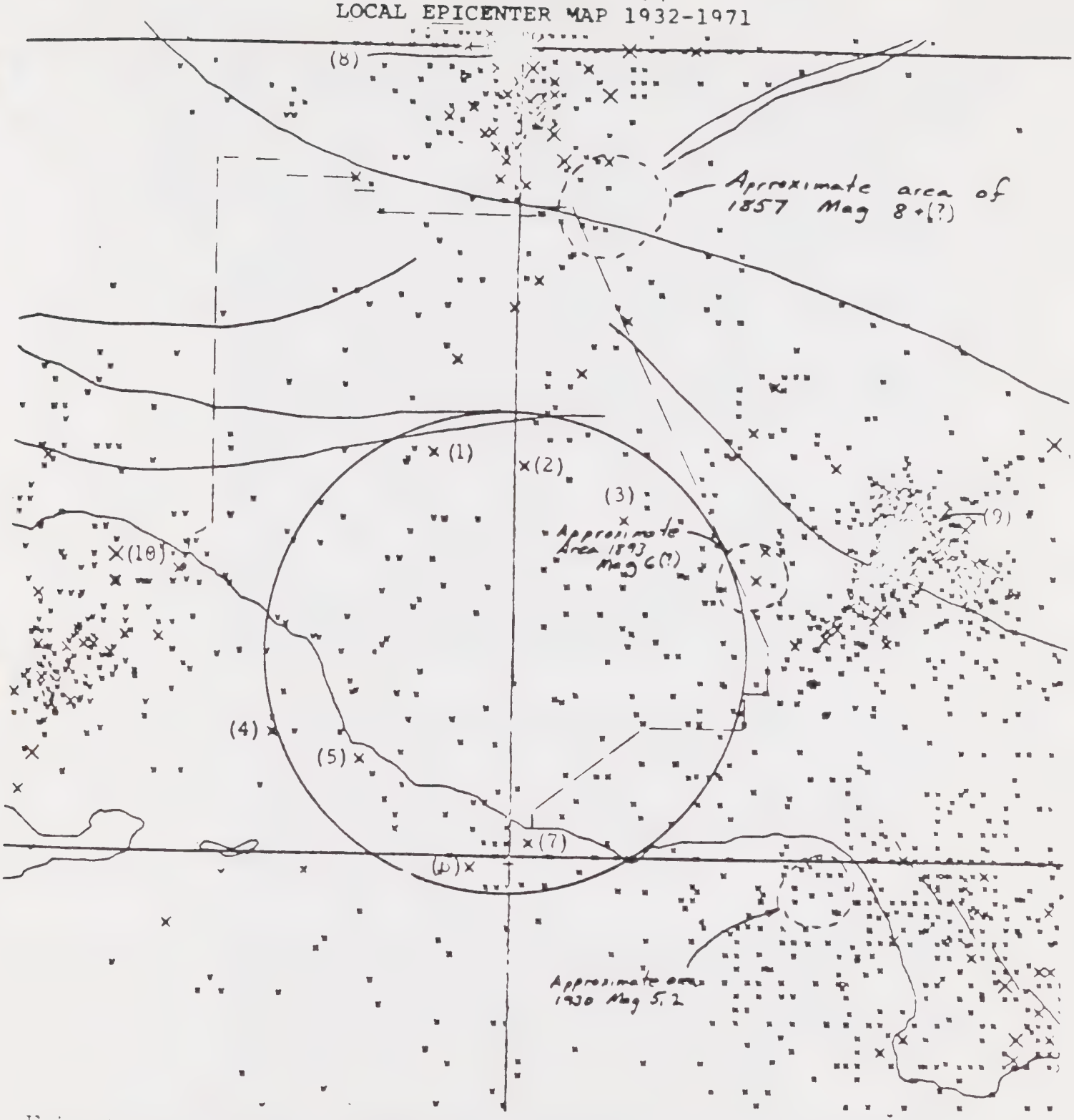
Ref: Unpublished thesis material by James A. Hileman, California Institute of Technology, 1972.

Illustration 3.6
VENTURA REGION (all events 1932-1972)



EPICENTER SYMBOLS

Illustration 3.7
LOCAL EPICENTER MAP 1932-1971



Epicenter	Date	Magnitude
(1)	11/17/54	4.4
(2)	9/ 3/42	4.5
(3)	6/ 1/46	4.1
(4)	8/22/50	4.2
(5)	3/18/57	4.7
(6)	5/29/55	4.1
(7)	4/16/43	4.7
(8)	7/21/52	7.7
(9)	2/ 9/71	6.4
(10)	7/ 1/41	5.9

DEFINITION OF THE HAZARD ZONE

The ground shaking hazard zones as indicated on Hazard Plate II (Southern Ventura County and Northern Ventura County) are based on the concept that ground shaking is partly determined by the thickness of the alluvium or unconsolidated material overlying relatively firm bedrock or consolidated earth material and the depth to the ground water table. The zones identified are as follows:

Zone A. Areas underlain by alluvium more than about 50 to 100 feet in thickness and with groundwater levels at about 15 feet or less below ground surfaces. These areas could experience the greatest amplification of long period ground vibration. Therefore, buildings such as high rise structures which have long natural vibration periods could be more susceptible to damage in this zone.

Zone B. (So. County only) Areas underlain by alluvium more than about 50 to 100 feet in thickness and with groundwater levels more than 15 feet below the gound surface. These areas could experience moderate amplification of long period ground vibration. Therefore, high rise structures which have long natural vibration periods could be more susceptible to damage in this zone but less susceptible than in Zone A.

Zone B-C. (No. County only) Areas underlain by alluvium less than about 50 feet in thickness and with groundwater levels more than about 15 feet below ground surfaces. These areas could experience the greatest amplificaiton of short period ground vibration. Therefore, low rise buildings which have short natural vibration periods could be more susceptible to damage in this zone.

Zone C. (So. County only) Areas underlain by broken bedrock adjacent to faults or where ground alluvium less than about 50 feet in thickness. These areas could experience the greatest amplification of short period ground vibration. Therefore, low rise buildings which have short natural vibration periods could be more susceptible to damage in this zone.

Zone D. Areas underlain by soft sedimentary bedrock or Terrace Deposits with some soil cover (generally thicker on lower slopes). These areas may not experience as severe shaking as the other zones, but more than Zone E because of softer materials and relatively thin soil cover. Amplification of short period ground vibration could be slight to moderate. Therefore low rise structures of short natural vibration periods could be somewhat more susceptible to damage.

Zone E. Areas underlain by hard bedrock with little or no soil cover. These areas may not experience as severe shaking as the other zones because the thin or lack of unconsolidated cover (soil) or significant free groundwater will not allow amplification of shaking.

Man-made structures within a zone will respond differently depending upon their natural periods of vibration. Similarly, two structures with the same natural period will respond differently in different zones. Generally those structures which have a natural frequency close to the ground frequencies that receive the greatest amplification within the zone would sustain the greatest shaking.

The boundaries of the Ground Shaking Hazard Zones should be considered as only approximate. In addition, the estimated response of structures and amplification of certain ranges of ground vibration may vary greatly within a given zone during a given earthquake depending upon its origin, i.e., magnitude, location, distance and depth.

The ground responses estimated for each zone represent generalizations illustrative of the possible variation in the predominant ground response possible from one area to another resulting from perhaps a large earthquake generated along the nearest portion of the San Andreas Fault. The highly complex nature of the geology of Ventura County and the great number of faults along which earthquakes could occur does not allow accurate determination of the range of predominant ground responses which could occur within any one zone.

Present technology or "state-of-the-art" will, however, allow determination of the likely ground response within an individual site proposed for development during an anticipated earthquake, but only after detailed geologic, seismologic and soils engineering investigation of the site.

NATURE OF INFORMATION

The information used in delineating the Ground Shaking Hazard Zones on Hazard Plate I is regional in nature and is based upon available groundwater levels and the presence of alluvium as mapped (compiled) as part of the recently completed report entitled "Geology and Mineral Resources Study of Southern Ventura County" (1973) and the Los Angeles Sheet of the Geologic Map of California, both prepared by the State Division of Mines and Geology

and estimated depths of alluvium. The hazard zone locations, boundaries and estimated ground response are not sufficiently accurate on which to base design criteria for individual site development or even provide a basis for land use planning except in the broadest sense without more detailed investigation.

The technical information is based primarily upon statistical data and seismic reports which date back to only the late 1800's and recent experience and research by various govenmental agencies and universities. Much of the information utilized was from that developed and published since the San Fernando Earthquake of February, 1971.

The Ground Shaking Hazard Zones designated on Hazard Plate I are only approximations and of insufficient accuracy to base any building code requirements. In addition, the estimated ground shaking characteristics are general approximations and may vary greatly within a given zone during a given earthquake.

Recent communication with the State Division of Mines and Geology indicates that the Division believes that the "state-of-the-art" for predicting ground response to waves transmitted by earthquakes has not reached the point where regional maps delineating zones showing predictable intensity or type of shaking can be made with any degree of accuracy.

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATION

Research and experience dealing with the nature and mechanism of earthquake ground shaking is being conducted by various Federal and State agencies as well as by universities and professional organizations. Much of this work is being conducted on a state-wide basis, however, indirect benefit to Ventura County will ge gained through developed technology.

The State Division of Mines and Geology is currently investigating the extent of the hazard to Ventura County as part of the cooperative Geologic Hazards Investigation scheduled for completion by July of 1975.

Additional investigation is being conducted on a continuing basis by:

Private Geologic Consultants who provide original information during investigations for private developments.

Ventura County Department of Public Works which:

a) Provides review and evaluation of Geologic and Soils and Foundation Engineering reports prepared for private projects within the unincorporated area and for the Cities of Camarillo, Simi Valley and Santa Paula.

b) Performs Geologic and Soils Engineering investigations for County projects such as roads and flood control facilities.

c) Coordinates, evaluates, and compiles geologic information derived from public and private investigations within the unincorporated areas and for the Cities of Camarillo, Simi Valley and Santa Paula.

Individual site investigation to provide detailed estimates of ground shaking sufficient for design purposes would include determination and analysis of the following information:

1. Depth and character of earth materials.
2. Presence and depth to groundwater.
3. Depth to and character of bedrock.
4. Evaluation of past earthquake records.
5. Estimate of the most likely earthquake to occur within the life of the proposed structure based upon existing earthquake records and evaluation of the potential activity of nearby as well as distant faults.
6. Evaluation of applicability of ground response records from other earthquakes and modification of them as necessary to suit the site in question or determination of ground response by computer methods.

WARNING

There is no way to prevent or predict to any degree of accuracy earthquakes or severity or kind of ground shaking during earthquakes at the present. Although it may be that developing technology will enable earthquakes to be predicted, in the not too distant future, the potential availability of such information may have undersirable side effects, such as drastic and sudden

effects on land values, insurance rates, business and the disruptive impacts caused by the possible large, rapid migrations of the populace out of affected areas.

ALLEVIATION

Regulation of public and private land development within both incorporated and unincorporated areas is administered by:

City and County Departments of Planning, Public Works, and Building and Safety

City Councils and the Board of Supervisors

Enforcement of the Uniform Building Code and City and County regulations and policies can be effected by the above agencies through requirement of review of proposed land use and evaluation of investigation and engineering studies for private development and public projects. Such reviews and evaluations can be performed by qualified engineering geologic and soils engineering staff or by retention of consultants.

Since alleviation of the hazard is largely accomplished through land use controls, the agencies, departments and legislative bodies making land use decisions have the primary responsibility for alleviating the hazard. City and County Planning Departments can utilize available hazard information to determine the need for any additional, more detailed studies and for formulating investigation and design requirements to avoid improper land use and inadequate construction. Decisions concerning adoption of these recommendations rests ultimately with the Planning Commissions, City Councils and the Board of Supervisors. Other bodies making land use decisions include port districts and redevelopment agencies.

Alleviation of existing hazards can be effected by replacement or strengthening of structures which may not be designed to resist strong ground shaking or modification of land uses as hazardous structures are removed. Determination of whether structures are hazardous would require detailed geologic-seismic and soils engineering investigation of seismic and foundation conditions and structural engineering evaluation of the particular structure.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

The Ventura area is underlain primarily by alluvial materials consisting primarily of clay, silt and sand of varying mixtures, densities and depths. Hazard Plate II indicates Zone B in the southern portion, Zone C in the northern portion and Zone D throughout the hillside areas. The "Avenue" area along the Ventura River is designated Zone B along the river and Zone C east of Ventura Avenue to the base of the hillsides.

Although the ground shaking (vibration or response) can be anticipated to vary greatly across and within these zones, in regard to the degree of amplification of varying periods of ground vibration, it is estimated that during a regional, strong earthquake that:

1. Zone B - high rise structures which have long natural vibration could be more susceptible to damage but less susceptible than in Zone A.

2. Zone C - low rise buildings which have short natural vibration periods could be more susceptible to damage.

3. Zone D - low rise buildings which have short natural vibration periods could be more susceptible to damage but less susceptible than in Zone C.

LOCAL RESOURCES AFFECTED BY THE HAZARD

Comparison of Hazard Plate II with present land uses within the city shows that the major portion of the city is within the hazard zones B and C. Encompassed within Zone A are the areas next to the beach including the harbor facilities, Fairgrounds, Pierpont residential development, Pierpont School and Freeway 101 between the western city limits and just west of Seaward Avenue.

The portion of the City within Zone B includes residential areas and two fire stations, eleven schools including Ventura College. Zone C runs along the edge of the foothills and includes the City Hall and its related facilities, seven schools, two hospitals, a fire station and Ventura County offices and the County Sheriffs Department.

On the basis of present information, however, it cannot be concluded that any of the structures or facilities are unsafe. It is probable, however, the investigation of many critical or vital structures would show that the degree of structural resistance to shaking may be less than desireable.

FINDINGS

PROBABILITY OF OCCURRENCE

Available geologic information indicates that the potential for the occurrence of strong ground shaking over much of the county, as a result of an earthquake along one of the major faults, is high when compared to the statewide probability. Exactly where, when and how strong the next earthquake will be, however, cannot be determined.

SEVERITY OF THE HAZARD

In the event of a strong earthquake (6.0 - 7.5 magnitude) originating in the southern county area a major earthquake (8.0 magnitude) along the San Andreas Fault, damage to many existing structures could be severe and some loss of life could occur within it. Major portions of the city of Ventura are within the higher hazard zones with depths of alluvium and unconsolidated earth materials more than 50 - 100 feet and relatively high water tables. The areas near and including foothills would experience less severe ground shaking, based on the depth of alluvium and/or broken bedrock.

RESOURCES AFFECTED

A major portion of the City is located within Zones B and C, including schools and fire stations, the City hall and other public facilities. Zone A encompasses the areas along the beach including the harbor facilities.

NATURE OF INFORMATION

The conclusions provided by this study are based primarily upon historic experience as well as the considerable scientific research which has been reported, much of the information has been required since the occurrence of the 1971 San Fernando Earthquake. Much still has to be learned, however.

The hazard boundaries as well as ground responses indicated by Hazard Plate II are at best conjectural. The information is only illustrative of the wide range of ground shaking that can be anticipated over relatively short distances based upon the type and depth of earth materials and presence of groundwater. Other factors which must be evaluated in determination of potential ground response include density of earth

material, location, magnitude, and depth of the earthquake, type of bedrock and type of faulting causing the earthquake. Determination of these factors, and only within certain limits, requires detailed investigation of an individual site.

The current cooperative GEOLOGIC HAZARDS INVESTIGATION being conducted by the State Division of Mines and Geology for the Ventura County area will provide additional necessary information for future updating of this portion of the Seismic Safety Element. The zone boundaries shown on Hazards Plate II must be considered approximate and subject to change as more detailed information becomes available.

SEISMIC
SAFETY

FLOODING

Nothing under heaven is softer or more yielding than water, but when it attacks things hard and resistant there is not one of them that can prevail.

Tao Te Ching 240 B.C.

GENERAL DISCUSSION

GENERAL DESCRIPTION

A flood may be defined as a "temporary rise in stream flow or stage that results in water overtopping its banks and inundating areas adjacent to the channel." (Kusler, p. 54). The area subject to inundation is generally referred to as the flood plain. The size and frequency of occurrence of a flood in a particular channel depends on a complex combination of conditions, including the amount, intensity, and distribution of rainfall, previous moisture conditions, and drainage patterns.

The magnitude of a flood is measured in terms of its peak discharge, which is the maximum volume of water (in cubic feet per second) passing a point along a channel. However, floods are usually referred to in terms of their frequency of occurrence, which is related to discharge; for example, the 100-year flood for a particular channel is the size flood which has a probability of being equalled or exceeded once in 100 years. The magnitude of the flood selected by a governmental agency for planning purposes (usually 50-year or 100-year) is referred to as the selected or regulatory flood.

Flooding is a natural occurrence, with some long range beneficial aspects such as replenishment of sand to beaches and of nutrients to agricultural lands. It is a hazard only because people find flood plains a desirable place to live and use. Man's encroachment on flood plains can also increase the hazard: structures may obstruct the flood flow, thus increasing flood heights, and the covering of the ground with impervious surfaces (e.g. pavement) increases the rate and quantity of runoff.

GENERAL EFFECT OF THE HAZARD

The primary effect of flooding is the threat to life and property. People and animals may drown; structures and their contents may be washed away or destroyed; roads, bridges, and railroad tracks may be washed out; and crops may be destroyed. The amount of damage caused by a flood depends on the depth of inundation, the velocity and duration of the flood, the debris production of the watershed, and the erodibility of the bed and banks of the watercourse.

Much of the property damage from floods is caused by

the severe erosion which results from fast-moving flood waters. Serious damage can also be caused by the floating debris and sediment carried by flood waters. Floating debris (including parts of buildings, trees, etc.) can obstruct the flood flow, resulting in increased flood heights and overflow areas. Debris can also damage structures and bridges, and can damage or plug flood control channels. Mineral and organic debris and sediment deposited on the land as the flood waters recede create a huge cleanup problem and health hazard and can destroy crops and croplands.

Floods may also create health hazards due to the discharge of raw sewage from damaged septic tank leach fields, sewer lines, and sewage treatment plants and due to flammable, explosive, or toxic materials carried off by flood waters. In addition, vital public services may be disrupted.

A major secondary effect of flooding is the cost to local and national taxpayers. Evacuation, relief, and floodfighting services, cleanup operations, and the repair of damaged public facilities are all paid for by the public. Taxpayers must also bear a share of the cost of federal loans for reconstruction of private property and of damage claims under federally subsidized flood insurance. Another large expense arises from the construction and maintenance of flood control facilities to protect development from future floods.

The duration and extent of the hazard depend on the specific physical characteristics and conditions of the watershed and the intensity and duration of the storm. Generally, in Ventura County a flood builds up to a peak and then begins to recede, with the entire process lasting from an hour to a week, depending largely upon the size and slope of the watershed.

GENERAL INVENTORY OF THE HAZARD

Damaging floods at some locations in the county were reported as early as 1862; other floods were reported in 1884, 1889, 1911, 1914 and 1916. Floods for which data was recorded occurred in 1932, 1933, 1934, 1938, 1941, 1944, 1946, 1950, 1952, 1958, 1962, 1965, 1966, 1967, January 1969 and February 1969.

The largest and most damaging recorded natural floods in the Calleguas Creek, Santa Clara, and Ventura watersheds occurred in 1969. (The St. Francis Dam failure in 1928 caused the largest known flood on the Santa Clara River). In 1969 the 50 and 100-year peak discharges were exceeded in many channels. The combined effects of the 1969 floods were disastrous: thirteen people lost their lives and property damage was estimated at 60 million dollars. Homes in Casitas Springs, Live Oak Acres, and Fillmore were flooded and 3,000 residents in Santa Paula and severel families in Fillmore were evacuated twice. A break in the Santa Clara levee threatened the City of Oxnard. Much agricultural land, primarily citrus groves, was seriously damaged. All over the county transportation facilities, including roads, bridges, and railroad tracks, were damaged. There was several million dollars worth of damage at the Ventura Marina. The Fillmore, Oak View, and Ventura sewage treatment plants were severely damaged, dumping raw sewage into the Santa Clara and Ventura Rivers and polluting beaches. In addition, sewer trunk lines were broken along San Antonio Creek, the Ventura River, and Calleguas Creek.

DEFINITION OF THE HAZARD ZONE

The boundaries of the hazard zone depend on the magnitude of peak discharge chosen for the selected flood. The Ventura County Flood Control District and most of the cities in the county use a 50-year flood as the selected flood, while the National Flood Insurance Regulations and most flood plain management literature use a 100-year flood. The Corps of Engineers has delineated 100-year (intermediate regional) and standard project floods (the largest flood that can reasonably be expected to occur).* For this study the Corps of Engineers 100-year flood plain is used as the hazard zone on the streams for which it has been mapped. (See Hazard Plate III)

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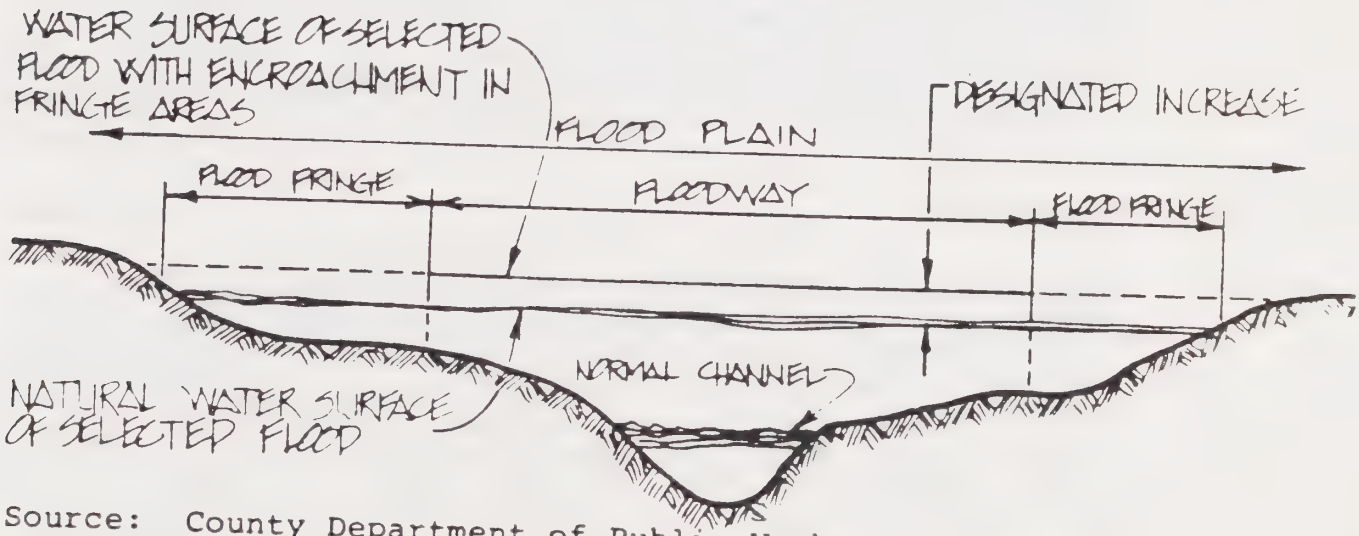
* The Flood Control District and the Corps base their calculations on different assumptions of watershed development and therefore get different results for flood magnitudes and overflow areas. The District is presently conducting a study of the comparative magnitudes of the various floods to determine whether there is a significant difference between their 50-year flood and the Corps' 100-year flood.

All presently available information on the geometrics of flood plains in the county is shown on the Hazard Plate. The 100-year and standard project flood plains of the Santa Clara and Ventura Rivers, Calleguas Creek (including Arroyo Simi), and Santa Paula, Sespe, San Antonio, and Conejo Creeks have been mapped by the Corps of Engineers. The U. S. Soil Conservation Service has mapped the 50-year flood plains of Revolon Slough. Flood plain limits for the other tributary channels have not yet been mapped. Many of these tributaries have flood control improvements over at least part of their courses.

The flood plain may actually be divided into two hazard areas: (1) the floodway, which is the portion that carries the deep and fast-moving water (usually defined as the area needed to contain the flood, allowing for a designated increase in flood height); and (2) the flood fringe area, which is the remainder of the flood plain.

Illustration 4.1. Flood Plain



Source: County Department of Public Works

NATURE OF INFORMATION

Flood plain limits are calculated from the best topographical information and hydrologic and hydraulic data and assumptions available. These delineations reflect existing conditions and changes in topography or land uses could affect these limits. Although the flood plains of many of the watercourses in the county have not been mapped, the Flood Control District has the capability to calculate the overflow areas for specific locations.

Floodway limits, which are extremely important for flood plain planning, have not yet been delineated for any channels in the county. However, the Flood Control District has begun a 5-year program of mapping flood plains and will soon begin to compute floodway limits (referred to as "designated watercourses") for the rivers and major tributaries. The computation and designation of floodways for all channels under the District's jurisdiction will take many years.

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATION

The Flood Control District has collected some data on flood discharges and topography and will soon begin delineating flood plains and floodways. At the request of the District, the Army Corps of Engineers has prepared Flood Plain Information Reports for eight major stream reaches in the county. These reports contain information on flood history and detailed maps and information on theoretical future flood profiles (heights) and corresponding overflow limits.

REGULATION

The entities responsible for regulation in flood hazard areas are the local governments and the Ventura County Flood Control District. The Flood Control District, which is governed by the Board of Supervisors, has the authority to maintain and construct flood control facilities on the channels shown on Hazard Plate 3. Ordinance FC-18, adopted in 1972, requires that a permit from the Flood Control District be obtained for most activities in "designated watercourses". At present, "designated watercourses" refers only to the bed and banks of the channels but once the floodways are mapped and public hearings are held, a portion of the overflow area inundated by a selected flood will be controlled by the Ordinance.

Outside of the designated watercourses, the prime responsibility for regulating activities in flood hazard areas lies with local governments. By State law land use and building restrictions to protect life and property from floods may be included in zoning and subdivision ordinances and building and sanitation codes. State and federal legislation has sought to encourage local governments to establish regulations for flood plains.

The Colbey-Alquist Flood Plain Management Act requires regulation as a condition for state assistance on federally authorized flood control projects.

The regulations of the National Flood Insurance Program (administered by the Department of Housing and Urban Development) require that communities adopt land use restrictions normally for the 100-year flood plain, in order to qualify for federally subsidized flood insurance. The types of restrictions communities must adopt are listed in some detail in the regulations; included is a requirement that residential structures be elevated above the level of the 100-year flood (see page for excerpts). Participation in the flood insurance program was recently made virtually mandatory by an amendment making flood insurance (in identified "special flood hazard" areas) a prerequisite for receiving mortgages or construction loans from federally regulated lending institutions. Although the county and all of the cities except Ojai are now on the eligible list for the program, most of these entities have not fully met the requirements considered optimal by the Federal Insurance Administration. It is highly probable that these entities will be required to upgrade their land use ordinances and regulations in the future in order to qualify for continuance in the National Flood Insurance Program.

WARNING

Flood warnings, issued by the U. S. Weather Bureau or the Flood Control District, are relayed to the public through the local news media and Sheriff's and Police departments.

ALLEVIATION

The flood hazard may be alleviated through a variety of measures, some corrective and some preventive.

Corrective measures include warning and relief programs, flood proofing of existing structures, and the construction of flood control works (channel improvements, levees, and dams). Structural works are the traditional means of alleviating the hazard, but they are extremely costly and are rarely able to keep up with development. Nationally, a half billion dollars a year is spent on flood control works, while flood damages average one billion dollars a year and are increasing. (Kusler, p. 3 and Sierra Club, p. 59). The cost of structurally protecting all the channels in the county Flood Control District's comprehensive plan has been estimated at over 300 million dollars, (V.C.F.C.D., the Great Floods of 1969, p. 2). Improperly planned structural works may also have

the effect of increasing downstream flood peaks and velocities and may contribute to beach erosion by reducing the amount of sand reaching the beaches. (Norris, R.M., p. 154)

Preventive measures for alleviating the hazard include public acquisition of flood plain lands, public information program, development policies, and regulations. The most effective means of preventing flood damage appears to be the regulation of the types of activities permitted in flood hazard areas. This approach is generally referred to as flood plain management. Flood plain management addresses the problems encountered in the utilization of flood plains; given the possible future land uses, the total spectrum of possible solutions to problems is considered. Flood plain management however, cannot protect all existing development. Therefore, to provide for the maximum alleviation of the flood hazard, a combination of corrective and preventive measures is necessary.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

The Ventura River goes through the western edge of Ventura, and the Santa Clara River is located just south of the city. The flood plains of the rivers are shown on Hazard Plate III. The hazard area of the Ventura River is relatively small due to a levee on its east bank, constructed by the Corps of Engineers in 1948 to protect the western part of the city. Improvements near the mouth of the Santa Clara since the 1969 floods have decreased the size of its flood plain. There is also a flood hazard along other unimproved drainage channels, these are defined in the city's master drainage plan.

LOCAL RESOURCES AFFECTED BY THE HAZARD

The 100-year flood plain of the Ventura River is primarily vacant but includes sections of Highway 101 and the railroad tracks.

The revised Santa Clara flood plain now includes only a small beach area and the Ventura Municipal and Olivas Municipal golf courses.

FINDINGS

PROBABILITY OF OCCURRENCE

Floods are natural occurrences whose frequency and magnitude depend on the rainfall and drainage patterns. It can be expected that the flood plain will probably be completely inundated on the average of once every 100 years.

SEVERITY OF THE HAZARD

Much of Ventura's potential flood hazard has been alleviated through flood control works. Planned channel improvements would provide further protection to developed areas.

RESOURCES AFFECTED

Resources affected by the present 100-year flood plain of the Ventura and Santa Clara Rivers are largely undeveloped except for sections of Highway 101 and the railroad tracks. These undeveloped areas could easily be protected through flood plain management.

NATURE OF THE INFORMATION

Existing data is sufficient to calculate the overflow for specific areas. In addition, the Flood Control District has begun a 5-year study to map the floodway limits (designated watercourses) for rivers and major tributaries.

SEISMIC
SAFETY

LANDSLIDE/MUDSLIDE

Against the wreckful siege of battering days...rocks impregnable are not so stout.

Shakespeare

GENERAL DISCUSSION

GENERAL DESCRIPTION

All hills, mountains and other highlands are being worn down by various natural processes. The most spectacular of these is the landslide, along with the other related types of ground failure. These processes are referred to geologically as "mass wasting", defined as: "the en masse downslope movement of rock debris" (Physical Geology, p. 134) . There are numerous causes for mass wasting, including erosion, water, broken or weak bedrock, earthquakes, and engineering defects.

Stream erosion can undercut slopes thereby removing support and causing failure of slopes by landsliding.

Saturation of soil or bedrock on hillsides can reduce the strength of these materials under certain conditions to a point where downhill sliding can occur in response to gravity. Rainfall can also saturate and erode vast quantities of loose soil, especially after large fires denude slopes, washing it down slope as earth or mud flows.

Earthquakes can directly shake loose material to fall or slide downhill; it can also cause liquefaction of sub-surface materials, which also can lead to slides (see Liquefaction Hazard).

Finally, man-made cuts or excavations can undercut unstable slopes, thus causing landslides. In practice, most landslides are caused by a combination of two or more of these factors, and come in a number of forms.

First is the rockfall, which is simply the movement of all or part of a mass downslope without seriously disturbing the surface it moves over. This is most common on coastal or other types of bluffs in this area (Illustration 5.1).

More complicated are slides, which are a type of ground failure that affects both the soil and the subsoil surface. In a relatively homogeneous material the normal type of slide is a slump (Illustration 5.2). The plane of failure is usually curved and the two (the downhill end) flows out from under the surface as it rotates backwards as a unit. In a stratified, layered rock, the slide tends to be a block glide in which large masses of material move down an inclined surface maintaining their uniformity (Illustration 5.3). Both these types of slides can continue moving downslope after their

Illustration 5.1
Example of a Rockfall

Illustration 5.2
Slump in relatively uniform material.

Note curved slide surface.

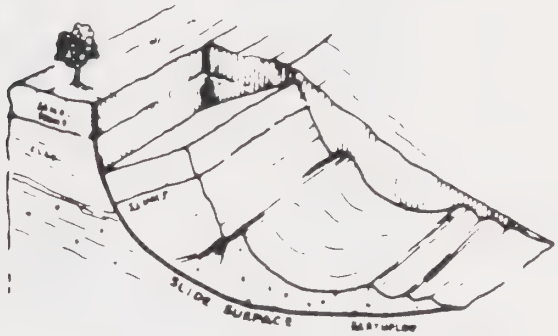


Illustration 5.3
Block-Glide in layered rocks inclined down-slope.

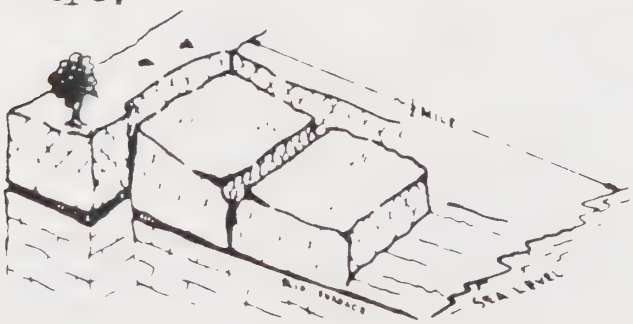


Illustration 5.4
D. Earthflow

SOURCE: Coastal Landslides in Southern California, and Ventura County Public Works.

initial failure and be broken up by the down slope spreading movement. These can continue far beyond the area in which they began and, if the movement is rapid, can move up onto the opposite side of a narrow valley.

Fourth and last, a flow is a landslide in basically unconsolidated material (Illustration 5.4). Most flows consist of saturated or nearly saturated material that undergoes viscous flow, although some types of flows are dry. Their movement is characterized by plasticity, which permits them to spread outward over wide areas and to move greater distance than other types of landslides. They often involve greater masses of material and continue downhill far beyond the base of the slope from which they originated. Many of history's most destructive landslides have been flows. Mudflows are a type of flow that are particularly prevalent after brush fires. Massively destructive mudslides hit Big Sur in 1972 after a brush fire, as they did in Glendora in 1968.

The speed with which landslides occur can vary considerably from rapid downfalls to virtually imperceptable movements downslope under the pull of gravity. Soil creep is a very slow type of earthflow movement. It occurs mainly in soils containing clay.

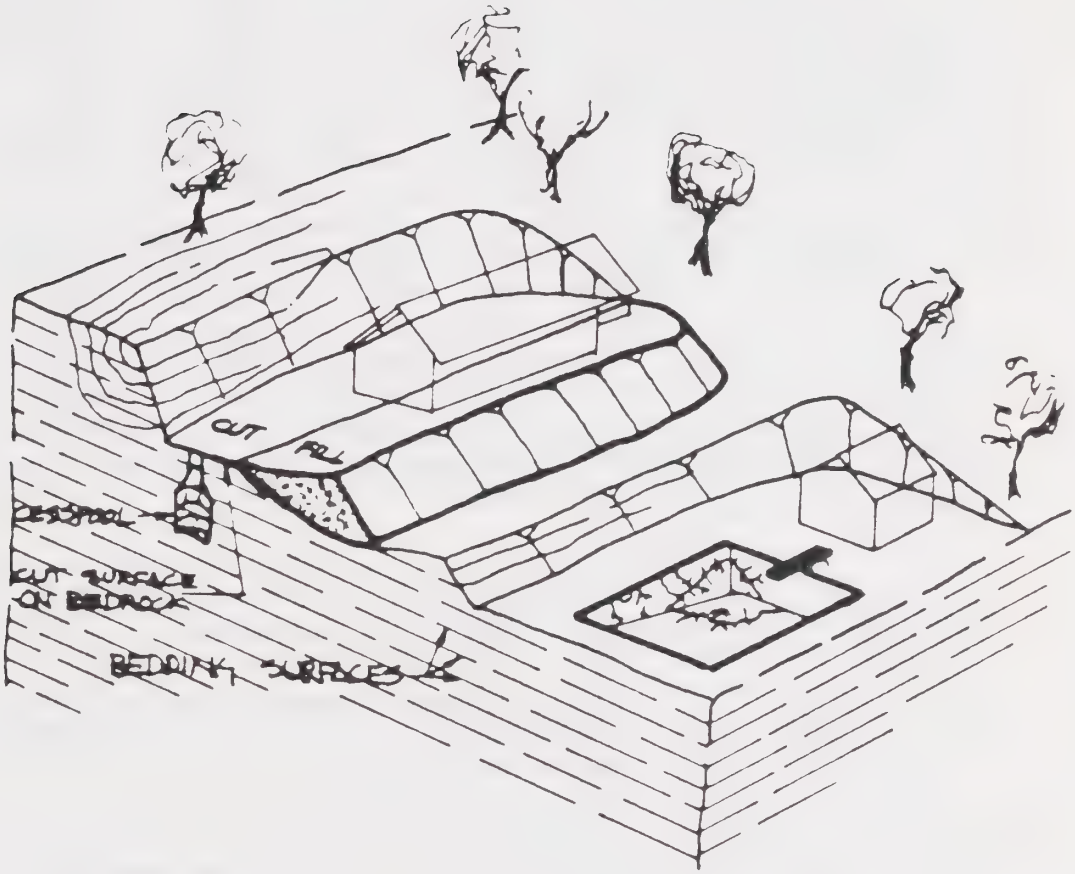
In general, most landslides within the county are shallow, ranging up to perhaps 100 feet in depth and limited in extent, generally less than 100 acres. Most are not presently in motion (active) but that moved downslope to positions of stability. Generally, stability is achieved within several years after the initial failure under natural conditions. However, the margin of stability of most landslides is small and inadequate to safely place structures on their surfaces.

Many of the existing landslides can be reactivated and downslope movement renewed after exceptionally heavy rainfall periods or as a result of earthquake shaking. Most landslides are over 100 years old and can exist for thousands of years until all of the landslide material is removed from the hillside by erosion.

Generally, the renewed movement of old landslides is slow, perhaps only a few inches per day. However, the formation of a new landslide can be rapid with initial, often quite sudden movements of hundreds of feet within a few hours.

Hundreds of landslides in Southern California are traceable to the general bedrock situation shown in Illustration 5.5. As long as the original natural slope remained ungraded it was stable because bedding surfaces

Illustration 5.5



DEVELOPMENT OF MAN-MADE BEDROCK LANDSLIDES (modified from R.H. Jahns). Hundreds of landslides in southern California are traceable to this general situation. This problem, as much as any other, has led to the adoption of grading ordinances. A naturally stable "dip-slope" has been made unstable by removing the support from bedding planes which resemble the surfaces between a tilted deck of cards. The cracking shown is one of the early signs that a landslide is imminent. Irrigation and sewage effluent contribute to slippage along the bedding.

were essentially parallel to the ground surface and were supported at the lower end. Once the slopes were cut, though, support was removed from the bedding surfaces.

The fill in the upper residential lot of Illustration 5·5 is uncontrolled and therefore is probably poorly compacted. In this state it can settle, erode and slough without sliding en masse. Settlement can crack the foundations and walls, because the portion of the house on bedrock will not settle as much as the portion on fill.

A cut-slope in which support has been removed can fail immediately upon being excavated; or it can continue to stand for a number of years. They are the principal slopes that give way one by one during succeeding wet seasons; their ultimate failure is inevitable. The cracking illustrated in Illustration 5.5 is one of the early signs that a landslide is eminent. As the cracks widen, they serve as channelways for surface runoff which facilitates mass movement.

The best evidence that the fill was not controlled during placement is that the soil zone was not removed by proper benching. If the soil is "adobe-like" the problem is compounded. The fill prism can skid as a unit along the top of the buried soil zone; or if the fill is bonded to the soil it can fail by flowage and creep of the weak adobe zone.

Man-made slides may occur during grading operations or after grading operations in hillside development. Those that occur during grading operations are generally not as hazardous nor as expensive to repair as slides that occur after development. Slides that occur after grading are an indication that the problem was not detected during grading, that sufficient corrective and preventive measures were not taken, or that stable conditions were modified after grading (Man-Made Landslides, F. B. Leighton, 1966).

GENERAL EFFECTS OF THE HAZARD

PRIMARY

Slope instability that results in landslides has caused substantial damage to the works of man in the Southern California area since the 1950's, when significant amounts of urban development first spread to the hillside areas within the County of Los Angeles. As a result of the heavy rains of 1952 there was approximately 7.5 million dollars of damage in the City of Los Angeles alone, due to erosion, deposition and landsliding. Strong hillside grading and building codes were established within Los Angeles County to prevent such future losses.

Geologic conditions similar to those within Los Angeles County also exist within the hillside areas of Ventura County. Future landsliding within Ventura County could also affect developed areas unless landslide hazard areas are recognized and appropriate land uses are designated.

In general, landsliding and the differential subsidence of the surface of landslides as well as the lateral forces exerted by most landslides can destroy most engineering structures. Most structures cannot be economically designed to withstand the forces of landsliding. Mass grading techniques have proven to be the most effective means of stabilizing landslides and unstable hillsides. This grading technique basically involves leveling of hilltops or ridges and filling in of the valleys in between, resulting in a general reduction of the height and inclination of slopes within the area.

Primary effects of landsliding can include:

1. Abrupt depression and lateral displacement of hillside surfaces over distances of up to several hundreds of feet.

2. Disruption of surface drainage.

3. Blockage of channels and roadways.

4. Displacement and breakage of utility lines (pipe and power).

5. Displacement and destruction of any improvements such as roadways, buildings, oil and water wells, etc.

SECONDARY

Secondary effects of landslides can include temporary impact on society such as displaced persons and families, and possible loss of life, damage of nearby property, etc. In addition, damage suits can be initiated against original developers of the property affected by landsliding, as well as the present owners and the government agency which may have reviewed the development, approved the plans and issued the grading and/or building permits.

Other effects could include:

1. Blockage of transportation routes.
2. Disruption of utility services.
3. Blockage of drainage.
4. Loss of usable land area, etc.

GENERAL INVENTORY OF THE HAZARD

LOCATION AND HISTORY

Southern Ventura County

The widespread landsliding and slope instability throughout much of southern Ventura County can be related to a great degree to the intensity of past faulting and folding of strata and to the clay content of certain sedimentary formations, as well as to subsurface moisture content. In general, the highest propensity for landsliding is found along the more prominent fault zones, anticlinal folds and in areas of the younger geologic formations. It is also apparent that the combination of these three factors has resulted in relatively intense areas of landsliding such as along the Rincon and hillsides south of the Santa Clara River.

Landslides and potentially unstable slopes are especially common in hillside areas underlain by sedimentary becrock of the Pico, Santa Barbara, Monterey/Modelo and Rincon Formations. These formations are generally uncemented (soft) and contain abundant silt and clay strata.

Many landslides are also associated with steep slopes which have been undercut by erosion (such as the several landslides along the easterly side of Big Sycamore Canyon northeast of Point Mugu) and downslope inclination of bedding planes (such as in the Ventura Anticline area). The presence of subsurface water is also a contributing factor to slope instability in the great majority of landslide occurrences.

Landslides and slope instability are widespread throughout the hillside areas. In general, most existing landslides are within the Existing Landslide Areas shown on Hazard Plate IV; most are not of recent origin, having occurred over 100 years ago, and most are not actively moving. However, they are subject to potential renewal movement if triggered by poorly planned grading, earthquakes, or if the ground moisture is increased. The areas of landsliding are, in general, confined to the areas of weak or clay bedrock and adverse geologic structure (such as bedding planes dipping in downslope directions).

Northern Ventura County

Landsliding is not believed to be of such widespread occurrence in the northern county area as to present any significant regional hazard. However, the region is extremely mountainous with steep slopes and local relief in most areas ranging from 200 to several hundred feet. Faulting and severe folding and tilting of bedrock strata is common, as are steep slopes. Another widespread condition which has contributed to formation of the present physiography and which affects the stability of hillsides is the general aggressive downcutting of stream channels.

The general, relative competence of the older bedrock throughout the region, in spite of the rugged physiography, has been the prime factor resisting the incidence of more widespread landsliding. However, many hillsides and existing landslide features are only marginally stable and only slight change in existing environmental conditions, such as would result from grading or irrigation, could trigger massive landsliding. In other words, the stability of many slopes is critically fragile and would, upon geologic investigation, show to be inadequately stable for most types of development.

DEFINITION OF THE HAZARD ZONE

Hazards Plate IV is a composite map showing landslide hazards within the southern county area. The Existing Landslide Areas designation includes area of major landslide features. The High Landslide/Mudslide Hazard zones indicate areas of marginal hillside stability which could be subject to major landslide occurrence. In general, the aforementioned categories are confined to areas containing ground surface slopes of 15% or more. Intermediate Hazard Zones are those

that could be subject to less severe landslides, but which have a definite risk slope, generally 10-15%. The Little or No Hazard Zone indicates areas which slope at less than 10% and not generally affected by landsliding. Active Beach Erosion is indicated for those areas which have, historically, been subject to severe wave erosion, which is considered a form of slope instability. Beach erosion per se, however, will be treated as a separate study within this Seismic/ Safety Element. (Landslide/Mudslide Hazard Southern Ventura County.)

The Hazard Zone boundaries were primarily determined based on information provided by two recent studies of landslide conditions in southern Ventura County (conducted by the State Division of Mines and Geology for the Federal Department of Housing and Urban Development (HUD) and for the County of Ventura under a cooperative agreement). The product of the latter study was the report entitled "Geology and Mineral Resources Study of Southern Ventura County" (1973), Preliminary Report 14.

NATURE OF INFORMATION

The potential landslide areas within the county were determined mainly by aerial photographic interpretation. The information is considered good, and fairly accurate. Knowledge of many locales, especially within or adjacent to areas of urban development was gained through experience in the particular area and field checking of some areas.

The current cooperative GEOLOGIC HAZARDS INVESTIGATION being conducted by the State Division of Mines and Geology for the Ventura County area will provide additional necessary information on landslide hazards in regard to: (1) those portions of the north half of the county in which development could possibly take place and (2) areas of the southern half of the county which could be susceptible to low-angle or lateral spreading during earthquake shaking. Except for the information necessary under Item 2 above, the present information is the best form available and is considered adequate for general planning purposes. It will, however, need to be supplemented with more detailed mapping or studies for any specific proposed development.

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATION

The State Division of Mines and Geology is currently investigating geologic conditions as part of the cooperative Geologic Hazards Investigation, in those portions of the county in which development could possibly take place. The study will be completed in 1975 and will consider landslide hazards in portions of the north half, as well as the potential hazard of landsliding resulting from liquefaction of water saturated sediments during earthquake shaking in portions of the south half of the county.

Additional investigation is being conducted on a continuing basis by:

1. Private Geologic Consultants who provide original informatin during investigations for private developments.

2. Ventura County Department of Public Works which:

   a) Provides review and evaluation of Geologic and Soils and Foundation Engineering reports prepared for private projects within the unincorporated area and for the Cities of Camarillo, Simi Valley and Santa Paula.

   b) Performs Geologic and Soils Engineering investigations for County projects such as roads and flood control facilities.

   c) Coordinates, evaluates, and compiles geologic information derived from public and private investigations within the unincorporated area and for the Cities of Camarillo, Simi Valley and Santa Paula.

WARNING

The potential for landsliding can be detected with relative certainty before any structures or facilities are placed in jeopardy. However, the problem is more difficult to handle in those hillside areas where development has already occurred in possibly dangerous

locations. In cases where structures have been constructed, regional studies can, in many places, delineate potential problem areas before damaging movement occurs. These studies can be conducted by local agencies and/or by cooperation between the property owners affected.

Presently, little is known of the potential for low-angle landsliding resulting from liquefaction of sediments during earthquake shaking or of areas in which this hazard exists. As previously indicated, this hazard is being evaluated under the Cooperative Geologic Hazards Investigation being conducted by the State Division of Mines and Geology.

ALLEVIATION

Regulation of public and private land development within both incorporated and unincorporated areas is administered by:

City and County Departments of Planning, Public Works, and Building and Safety

City Councils and the Board of Supervisors

Enforcement of the Uniform Building Code and City and County regulations and policies can be effected by the above agencies by requiring the review of land use proposals and the evaluation of engineering studies for private development and public projects. Such reviews and evaluations can be performed by qualified engineering geologic and soils engineering staff or by retention of consultants.

Since alleviation of the hazard can be affected, in part, through land use controls, the agencies, departments and legislative bodies making land use decisions have the primary responsibility for alleviating the hazard. City and County Planning Departments can utilize available hazard information to avoid improper land use. Decisions concerning adoption of these recommendations rests ultimately with the Planning Commissions, City Councils and the Board of Supervisors. Other bodies making land use decisions include Port Districts and redevelopment agencies.

Present County Subdivision, Grading and Building Ordinances which are considered as strong or stronger than any in the Southern California, are adequate to insure that areas of landsliding or hillside areas

are adequately investigated and that any development incorporates appropriate design provisions to prevent landsliding. The Departments of Public Works and Building and Safety of both the County and Cities have the responsibility of adequately enforcing these or equivalent ordinances.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

The landslide hazard in hillside areas within Ventura is largely restricted to those portions of the city north of Foothill Road. These areas have been designated as High Hazard Areas on Hazards Plate IV. Most areas of the City south of Foothill Road are classified as areas of Little or No Hazard. The immediate area of the beaches, however, is classified as High Hazard Area. This is due mainly to the potential of wave erosion and partly due to the potential of low-angle landsliding or bank failures caused by soil liquefaction during earthquake shaking. This latter form of landsliding or bank failure can particularly occur in the harbor or sea level channel areas.

In addition, a portion of the western part of the City in the approximate vicinity of that west of Seaward Avenue and Ventura River and southerly of Main Street, may be subject to lateral movement toward the south, as a result of soil liquefaction during earthquake shaking. Neither the level of the hazard nor the possible extent of the area potentially affected is known in detail. It is possible that the area affected is very limited in extent.

LOCAL RESOURCES AFFECTED BY THE HAZARD

Comparison of Hazard Plate IV with present land uses within the City indicates that primarily residential structures are located within the hazard zone north of Foothill Road. Also included within this zone are St. Catherine's School, the Ventura College of Law, the Buenaventura Academy, portions of De Anza Junior High School, the Ventura Courthouse and City Hall and the City Hall and the San Buenaventura Mission. None of the existing structures are known to be in immediate danger of being affected by landsliding. However, detailed information on individual structures was not evaluated as a part of this study.

The hazard along the coast contains many commercial and industrial facilities in addition to residential areas. The hazard along the beach is based on the potential occurrence of liquefaction and lateral movement or low angle sliding during earthquake shaking as well as potential sliding resulting from undercutting of the beach by wave action. The hazard in harbor areas is mainly due to possible sliding of embankments

and adjacent areas as a result of liquefaction. The areas along the coast were included in the landslide/mudslide hazard zone because they are included in the Analysis of Mudslide Risk in Southern Ventura County, California, 1971 and Landslide Risk Prediction, 1971, prepared by the California Division of Mines and Geology for the Department of Housing and Urban Development.

FINDINGS

PROBABILITY OF OCCURRENCE

The hillside areas in landslide hazard zones are largely undeveloped. However, the possibility of damage from the hazard is considered real in areas built prior to present Grading and Building Codes.

Harbor areas, sea level channels and perhaps some beach areas may be susceptible to low-angle landsliding or bank failures caused by soil liquefaction during earthquake shaking. (Minor embankment damage occurred in the Channel Islands Harbor as a result of ground shaking during the Point Mugu Earthquake of February, 1973.)

SEVERITY OF THE HAZARD

Most of the City of Ventura is in the little or no hazard zone. The hillside area north of Foothill Road and the immediate area along the beaches are within the high hazard zone.

NATURE OF THE INFORMATION

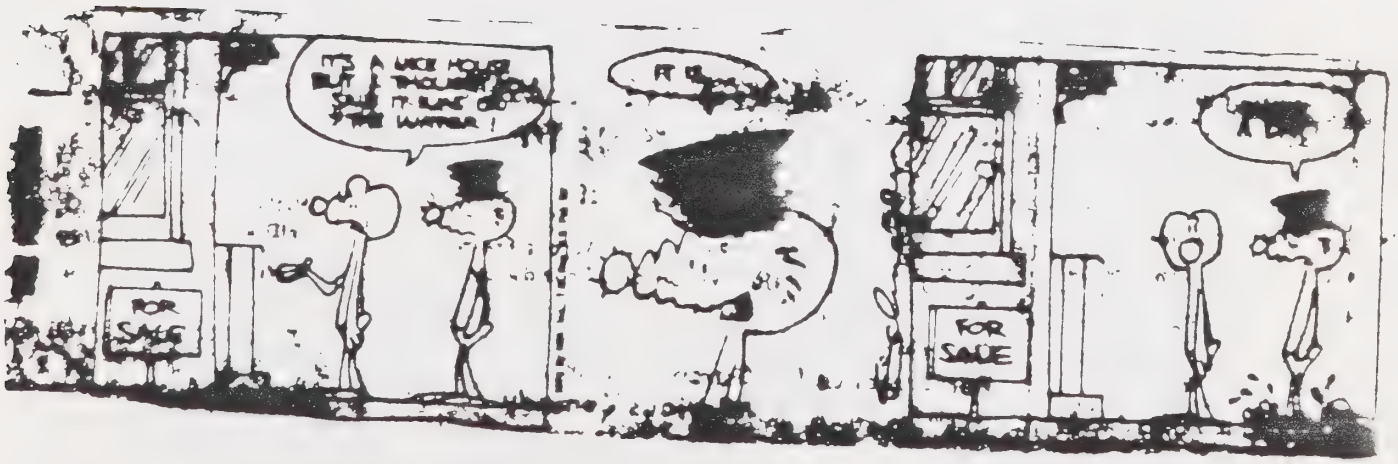
The present information is the best available and is considered adequate for general planning purposes. It will, however, need to be supplemented with more detailed mapping or studies for any specified proposed development.

SEISMIC
SAFETY

BEACH EROSION

I have seen the hungry ocean gain
Advantage on the kingdom of the shore
And the firm soil win of the watery main
Increasing store with loss, and loss with store.

Shakespeare



GENERAL DISCUSSION

GENERAL DESCRIPTION

The erosion of coastal beaches is a very complex and multi-faceted problem. It arises from many factors comprising the coastal ecosystem. Simplistic and short-sighted solutions are inadequate to deal with the beach erosion problem because it is such an intricate and dynamic phenomenon. Only long-range, comprehensive, technically informed approaches can effectuate a complete and long lasting solution.

PHYSICAL PROPERTIES

The beach is an ever changing entity. It is in a perpetual state of dynamic disequilibrium, adjusting to changes in waves, currents, tides and sediment deposition. These agents create a flow of sand along the coastline known as the littoral drift. Beaches remain stable only when the amount of sand deposited is equal to the amount of sand taken away, both of which are determined primarily by the littoral drift. Since these two factors only rarely negate each other exactly, beaches are usually either receding or advancing at any one point in time.

Sandy beaches are formed largely by the weathering of inland rocks and riverine transport to the sea. The sand which maintains Ventura County beaches travels with the littoral drift from north to south, originating almost entirely from the Santa Clara River when in flood (70%) the Ventura River (10%) and from beaches up coast of the Ventura River (20%), totaling a movement on the average of 1.2 million cubic yards of sand per year between the Santa Clara River and Port Hueneme (Southern California Coastal Water Research Project, March, 1973). This sand is part of the Santa Barbara littoral cell. A littoral cell is a closed system of shoreline in which sand undergoes a complete transport cycle. It begins typically with a stretch of rocky coast where the sand supply is extremely limited. Downcoast, in the direction of the littoral drift, sand supplies become more abundant and the beaches become straighter and wider. The cell is terminated by submarine canyons or other "sand sinks" which capture sand and halt its movement, thus causing another littoral cell to begin with rocky coasts devoid of beaches (California Coastal Zone Conservation Commission, April, 1974). In the Santa Barbara cell, most of the sand terminates in the Mugu and Hueneme submarine canyons.

The force which moves sand along the shoreline, creating the phenomenon known as the littoral drift, is provided by waves breaking at an angle along the beaches. Since a component of the wave energy imparted to the beach is along the shoreline, and consistently in the same direction, the net effect of many such waves is to push sand steadily alongshore. In Ventura County, waves moving in the direction of prevailing westerly wind generally do meet the beaches head on, because of the shoreline's orientation from northwest to southeast. The resultant effect is a net movement of sand over time from north to south along the beaches.

In addition to the littoral drift, there is an onshore-offshore movement of sand. Waves which are small or spaced far apart tend to move sand from the ocean bottom towards the beach, building it out. Large, closely spaced waves tend to cut back the beach and move the eroded sand seaward, forming sand bars in shallow water. In the absence of littoral drift, beach motion is merely an exchange of sand moving back and forth between beach and bar in response to changing weather patterns. (Bascom, 1964).

ORIGINS

Natural Processes - As mentioned above, large, closely spaced waves tend to move sand from onshore to offshore. Also, large waves move sand at a faster rate alongshore than small waves (Bascom, 1964). Therefore, during periods of increased wave activity, the waves pounding the beaches can cause the coastline to dramatically recede, since more sand is taken away than is deposited. Major storms have caused erosion up to 100 feet on many U.S. beaches (Perm. Int. Asso. of Nav. Cong., 1973). Such recession is even greater when storms are combined with periods of high tides. This effect greatly elevates the ocean level since storms themselves cause the tide to elevate (a phenomenon called "storm surge").

Sandy beaches, formed largely by the weathering of inland rocks and riverine transport to the sea, often serve as a natural buffer between the sea and the easily erodible upland. A highly eroded beach loses some of its protective capability. A wide flat beach just above the waterline permits many of the oncoming waves to dissipate without damage, when the same waves would produce intensive damage in a region fronted by a narrow, eroding beach. A continuous dune line can likewise limit the area of wave damage to the ocean front by providing another line of defense against damaging waves; but the beaches and dunes are both subject to erosion by prolonged wave attack and areas that appeared safe at the beginning of a storm may be in danger if the storm surge persists through two or more high tides (U.S. Water Res. Council, August, 1971).

Southern California's coastline experiences relatively high levels of both wave activity and coastal sedimentation. Therefore, large changes in either factor relative to the other can result in rapid changes in coastal profile, since beach stability is dependent primarily upon a balance between these two factors (So. Calif. Assoc. of Govts., February, 1972). In fact, large changes in both do occur due to Southern California's highly variable weather. The sediment which is produced from storm related floods may take months, or even years, to find its way to the beaches and undo the immediate damage of the storm activity. Despite rapid changes, continuance of the beach over a long period of time is assured with an adequate supply of replenishing sand.

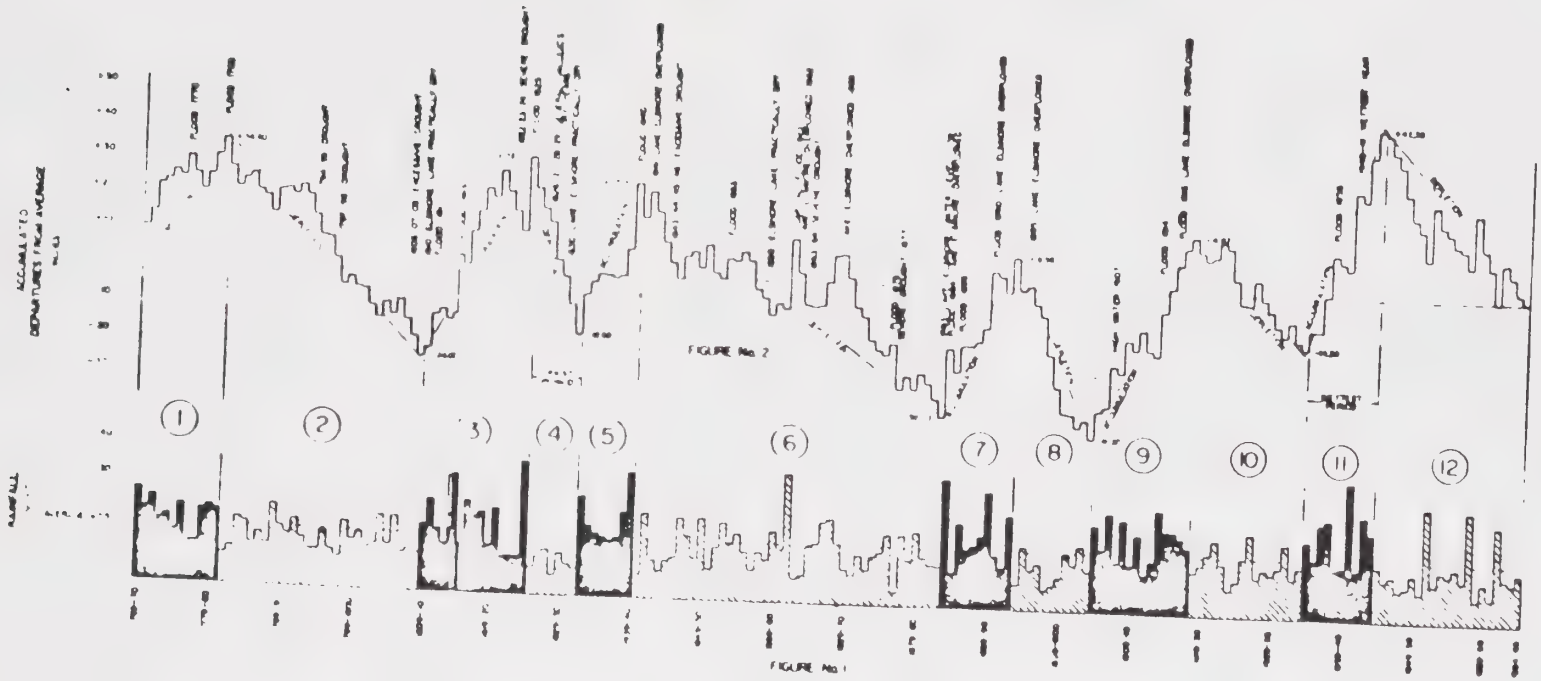
Coastal erosion in Southern California has seasonal trends and other natural cycles in addition to the dramatic fluctuations which occur from heavy storms. The beaches can change from month to month in response to tidal fluctuations, and generally advance in the summer months, which have moderate wave activity, and recede during the rest of the year in response to increased wave activity (So. Calif. Assoc. of Govts., March, 1973). Some beaches have, in addition, even longer cycles of beach erosion. California's weather runs wet and dry in cycles of about 25 years, corresponding roughly to the double sunspot cycle that affects all of earth's weather. In a dry cycle, relatively little sediment gets washed into the sea (Soucie, June, 1973). Most of the sediment input occurs during the large, infrequent floods (So. Calif. Coastal Water Research Project, March, 1973). Therefore, a net long-term erosion trend should occur in dry cycles, which have few if any large floods.

Illustration 6.1 depicts seasonal rainfall fluctuations at Santa Paula from 1769 to 1965, dividing the trends into wet and dry periods. Since there were six cycles during this period, the cycles run roughly 32 years, somewhat longer than the stated 25 year cycle. Nevertheless, it substantiates the existence of a long term cyclical pattern of rainfall to which a pattern of erosion should generally correspond. The relationship between rainfall and coastal deposition of sediment was elucidated by an Army Corps study in Santa Barbara Harbor, which showed that a graph of rainfall plotted by 2-year totals had a striking similarity to a graph of accretion of 2-year intervals when the time factors were adjusted to show accretion lagging 3-1/2 years behind rainfall (U.S. Congress, December, 1948).

It is possible that superimposed on natural cycles of erosion, where they occur, are very long-term trends of net shoreline change stemming also from natural processes. General states of shoreline progradation (built out) or

Illustration 6.1

Estimated Seasonal Rainfall at Santa Paula 1769-70 to 1871-72
Measured Seasonal Rainfall at Santa Paula 1872-73 to 1964-65
196 Year Average 16.55"



retrogradation (erosion) could be caused by such agents as geologic uplift or subsidence, climatic shifts, and a fluctuating sea level (some authorities believe the sea level has been rising 1 to 2 feet every century) (Perm. Int. Assoc. of Nav. Cong., 1973). Long-term trends which are more localized can be caused by river migration, near-shore wave energy alteration, and the presence of head-lands. River migration changes the location of river deltas, which act as groins by catching littoral sediment, thereby causing accetion on the upcoast side and inducing erosion on the downcoast side because of the reduced littoral flow. The wave energy which actually reaches the shoreline at various points is influenced by nearshore wave refraction and ocean bottom configuration. These factors have the ability to influence the erosive capa-bility of waves reaching the beach, and hence create a alternating erosion and accretion zones (Munk, January, 1947). Headlands which jut out into the water also act as groins. Hence, the bare rock of headlands on their down current sides often erodes away continually because the flow of sediment is captured by the headlands on their updrift sides.

Man-Induced Processes - Like nature, man has the abil-ity to alter the configuration of the shoreline by inducing long-term or short-term erosion. His method is to inter-fere with natural processes, and his motivation is usually to prevent or impede natural fluctuations in the shoreline. However, sometimes his works are meant to correct problems of his own doing. These problems may stem from short term solutions to other erosion problems, or from projects os-temsibly unrelated to the beach.

The construction of groins, jetties, seawalls, and breakwaters are the primary structural measures used to impede beach erosion. Each is at best a partial, short-term solution to erosion problems. Groins, for example, can trap littoral sand and build beaches out over a certain area, but by doing so they reduce for a time the amount of sand that flows to downcurrent beaches and, therefore, may relocate the original problem by causing erosion in other areas. Breakwaters and jetties (which are typically employed to protect harbors from wave activity) have similar down-current effects on the littoral drift of sand, although the mechanics are different. Since jetties are longer than groins, they interfere with sand flow to a greater degree, and sand bypassing is usually requried to replenish down-current beaches. Seawalls can provide a "line of defense" for homes against the onslaught of waves, but tend to re-flect the energy of the waves backward, which gouges out sand seaward of the wall during high swells. While property is protected, the beach between the property and the sea is more quickly reduced and public recreational area is dimin-ished (U.S. Army, August, 1971).

Any structure protruding into the ocean can act as a groin. Landfills built to support highways swinging out into the ocean can have downcurrent groin-like effects.

Localized erosion problems can also ensue from the removal and/or alteration of sand dunes by making the beach more susceptible to erosion. Dunes protect the land behind the beach from erosion and flooding and serve to hold and extend the beach itself (Oxnard Planning Dept., September, 1972). Merely the pedestrian use of dunes can weaken surface vegetation and destabilize them to a point where they become less able to contain storm waves.

For Southern California in general, it has been stated that the coastline is presently in a state of retrogradation, as evidenced by its straight alluvial coasts and the absence of beaches along rocky coasts, indicating a general dominance of wave activity over stream deposition of sediments (So. Calif. Assoc. of Govts., February, 1972). This may be supported by the fact that 87% of the coastline of Southern California is erosional, as opposed to depositional (So. Calif. Water Research Project, March, 1973). It has also been stated that "There is evidence that the artificial drainage systems developed in Southrn California coastal watershed have created a general condition of retrogradation. This may be one of the greatest impacts that man has made upon the natural environment to date." (So. Calif. Assoc. of Govts., February, 1972). The same source states further that, "The fact that the sands will eventually be depleted from our shores in significant amounts is especially disturbing because it might occur catastrophically rather than gradually. On an annual basis stream energy distributions are erratic while wave energy distributions are relatively constant. We know, for example, that most of the 7 million cubic yards of sand transported to the shore by the Santa Clara River during 1933-1938 was delivered in a flood during a 4-day period of February - March, 1938. This volume represents about a 7 - 10 year supply for the waves along the Ventura-Oxnard coast where water-impounding dams and flood control now greatly restricts the input of sediments into the ocean."

On the West Coast, where rivers and streams are by far the major source of sea sediment, flood control measures to protect development in flood plains and water supply dams are estimated to trap 50% of the sediment that once replenished the beaches (Soucie, June, 1973). Over 50% of Southern California's watershed is behind dams (36.5% for Ventura County). The National Academy of Sciences - Committee on Oceanography recently noted that runoff control in Southern California has severely cut the supply of sand, and without some intervention, the beaches may seriously deteriorate within the next two decades (Orange County Planning Dept., November, 1971).

It should be kept in mind that sand supplies in Ventura County have not been cut off as much as it has in Southern California as a whole, and may have unique circumstances involved in terms of topography, etc. This makes it all the more urgent to examine what might be the potential outcome of the trends which have been set in motion .

While the immediate results of flood control improvements include both increased safety for those living along the inland flood plains as well as the creation of more developable land, the flood control facilities often channel to the ocean water containing far fewer sandy particles than are necessary to even hold the line on threatened beaches (Orange County Planning Dept., November, 1971). Channeling of stream beds and dam construction for soil erosion prevention or flood control have reduced beach sand supply and changed prograding river deltas into tidal inlets, consequently including beach erosion (So. Calif. Assoc. of Govts., February, 1972). When river deltas and adjacent feeder beach areas are reducing by withholding sand supplies, in the face of persistent longshore currents, the result is a gradual recession along all of the shoreline that is dependent on the tributory drainage area as a source of replenishment (U.S. Army, May, 1972).

Such effects in adjacent counties have been documented via analysis of Southern California watersheds. Little beach building material is derived from the Malibu Creek watershed except during large storm runoff because of five reservoirs on Malibu Creek watershed built between 1881 and 1925. The accumulation of debris by these reservoir developments has reduced the passage of potential littoral materials to the coastline (U.S. Army, August, 1972). The Santa Maria River in Santa Barbara County has more than 75% of its sediment cut off by the Twitchell Dam (Calif. Dept. Water Res., July, 1969).

For Ventura County, in 1961 the Army Corps of Engineers asserted that prior to 1948 there were no restricting structures on any of the streams making up the Santa Clara and Ventura River basins. However, since 1948 the total drainage areas of the streams have been reduced by about 1/3 by the construction of the Matilija, Casitas and Santa Felicia Reservoirs (U.S. Army, April, 1961). In 1962, the Army Corps further asserted that construction of these reservoirs and the relatively dry years after 1948 were estimated to have decreased sand supplies by at least 1/2. This reduction in material supply, part of which is permanent, had caused substantial recession of the shoreline (U.S. Congress, May, 1962). The erosion between the Ventura and Santa Clara Rivers was expected to continue, in view of the prevailing dry years and the resultant lack of flood

runoff from the streams which had previously supplied littoral material to the area. It was estimated that due to the construction of reservoirs on Matilija and Coyote Creeks since 1948, sediment contribution to the ocean from the Ventura River has been reduce by 50% (U.S. Army, April, 1961). Another study of the Ventura and Santa Clara Rivers showed that prior to 1948 these rivers contributed approximately 1,702,000 cubic yards of sediment annually to the littoral zone. By 1963, controls and a series of dry years had reduced the quantity of sediments to the coast to an average of about 716,000 cubic yards per year. Sediment contributions from these streams was expected to be further decreased in the future (Watts, 1963).

Still another study calculated that dams in the Santa Clara and Ventura Rivers reduced in those rivers the annual average production of sediment, considering only those grain sizes suitable for beach nourishment, from 1,230,000 to 700,000 cubic yards. The calculations incorporated 50 year averages of rainfall, so that the effects of the dams were isolated from that of fluctuating rainfall in the short term (Calif. Dept. of Water Res., July, 1969).

It should be noted that the 1969 floods of January and February, because of the unusually heavy rains of that period, deposited about 13 million cubic yards of sediment at the mouth of the Santa Clara River. This could have a significant effect on some of the earlier estimates of annual sand supply, if taken into account.

Dams for water retention have the ability to contribute to beach erosion in several ways. Because they trap practically all of the sediment in the stream, they reduce the watershed area capable of supplying sand to the beach (See Illustration 6.2) The watershed area which they block off is usually in the upper reaches of the tributaries, where stream velocity and rainfall is greatest and most of the sediment is generated. For example, it has been observed that the Ventura River currently carries only a small fraction of the former volume of sediment because of the construction of the Matiliga Dam, and the Matiliga Dam controls only 24.3 percent of the drainage basin (Norris, 1964). They also lower peak flood velocities by controlling the amount of water released, which reduces the ability of streams to carry sediments, especially the larger particles. The large grained sediments are important to the beach because they are not easily erodable and help to hold the beach together (Drelicharz),1974). They also "bounce" along stream bottoms during floods and create additional sediments (Norris, 1964).

The "clean" water which flows downstream from dams has the capacity to pick up sand up to its carrying capacity if sand is available and the slope is steep. However, by doing so the water erodes downward, which can reduce the gradient of some portions of the stream and thereby decrease stream velocity, which in turn diminishes the ability of the water to carry sediments over the long run (Drelicharz, July, 1974). Also, at some point in time, stream flow will winnow from the channel bedload below controlled portions of the watershed the smaller sand grains which are easily transportable, after which the amount of sand transported will be sharply decreased, and shores will deplete rapidly and waves will attack the shores directly (So. Calif. Assoc. of Govts., February, 1972). This point in time may be far off into the future in Ventura County watersheds because of the sharp gradient and the abundance of sand in the stream channels below dams. However, no one can predict when it might occur, without a program of continual monitoring and measuring of sand supply movements.

The existence of dams in Ventura and Santa Clara River waters was singled out by the Army Corps in 1961 as an important determinant of current and continuing beach erosion in Ventura County and was used as one of the justifications for the groins at Pierpont. The recent construction of the Castaic Dam has cut off more of the sediment-generating watershed in the Santa Clara. The construction of more water-impounding dams could further the impact. For instance, the Department of Water Resources had predicted that sediment production in the Santa Clara Watershed would be further decreased from an average of 600,000 cubic yards annually to 250,000 cubic yards annually with the future construction of dams on Castaic Creek (completed) and on Topa Topa and Cold Springs (since abandoned) (Calif. Dept. of Water Res., July, 1964).

The Army Corps of Engineers, in their Environmental Impact Statement for the Ventura Marina, stated that "Future reductions in the rate of supply of sand from river sources to the beaches downcoast from Ventura Marina, occasioned by the construction of upstream reservoirs, may cause long-term erosion in this area unless measures (such as groin construction) are taken to protect the beaches from erosion" (U.S. Army, Sept., 1970).

Flood control projects such as debris basins also catch sand and prevent its movement down to the beaches. For example, after the 1969 floods, 12 of the 26 debris basins in the county were cleared or about 400,000 cubic yards of sediment (Ventura County Department of Public Works, June, 1972). (The 1969 floods,estimated as a 1%

frequency of occurrence for the Santa Clara River and 2% for the Ventura River, deposited more than 13 million cubic yards of sediment at the mouth of the Santa Clara, an enormous amount despite the retention by dams and flood control projects, because of the unusually heavy rains.) Debris basins tend to settle out the larger particles of sand which are more important to the beach. Unless the basins are very large they have relatively little effect on peak flood flows. The facilities are designed to trap debris and sediment and pass flood flow over the spillway as cleaner water which picks up material from the downstream channel. The possible long term effect of releasing this "clean" water has already been mentioned.

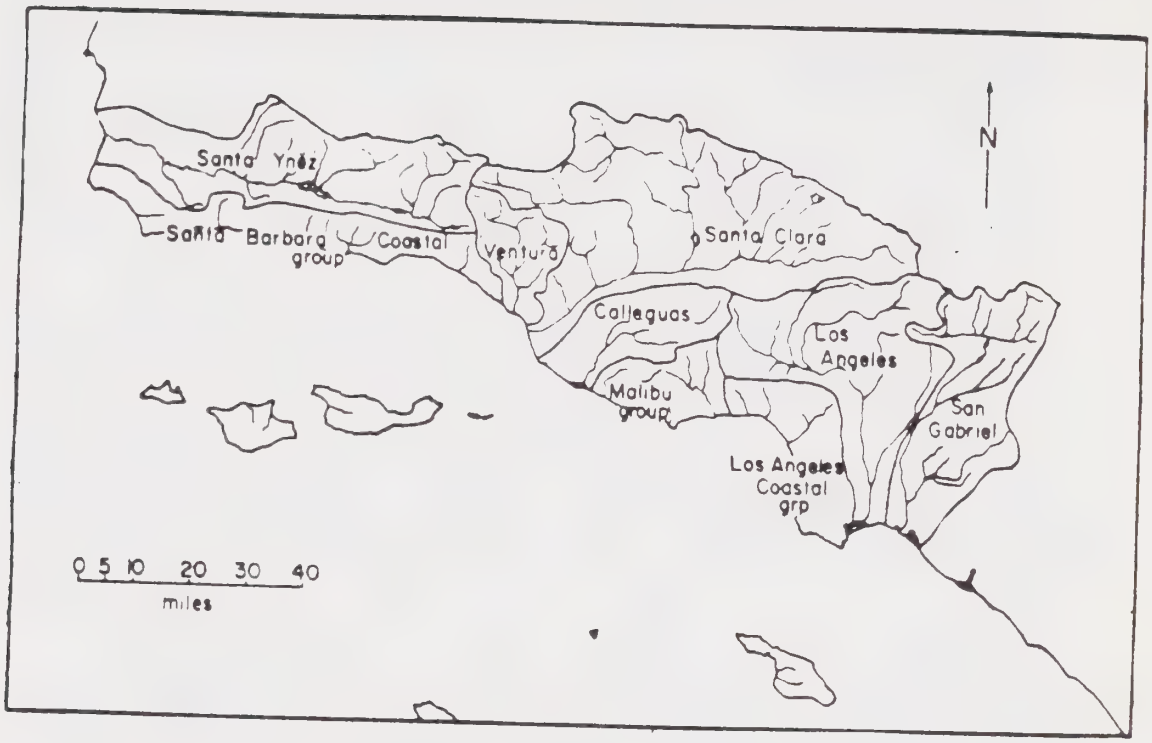
One should be reminded that there are large public benefits associated with dam and flood control operations, such as the protection of life and property, water conservation, recreation and the opening of land to development and agriculture. It is probable that some of these benefits are of greater public importance than the preservation of our beaches. However, property loss can also ensue from beach erosion, and the beaches themselves constitute a resource of great economic and aesthetic value. Difficult either/or decisions are not always necessary, because remedial measures often can be incorporated into stream development structures. At least a modification of present thinking by including regular consideration of beach sand supply in all new stream development programs could be taken.

As stream development proceeds and the amount of sand which floods would normally carry to the beaches is critically reduced, we may expect in Southern California a slow but continuous shrinkage of our beaches, and we may have about 20 to 40 years to institute remedial measures (Norris, 1964).

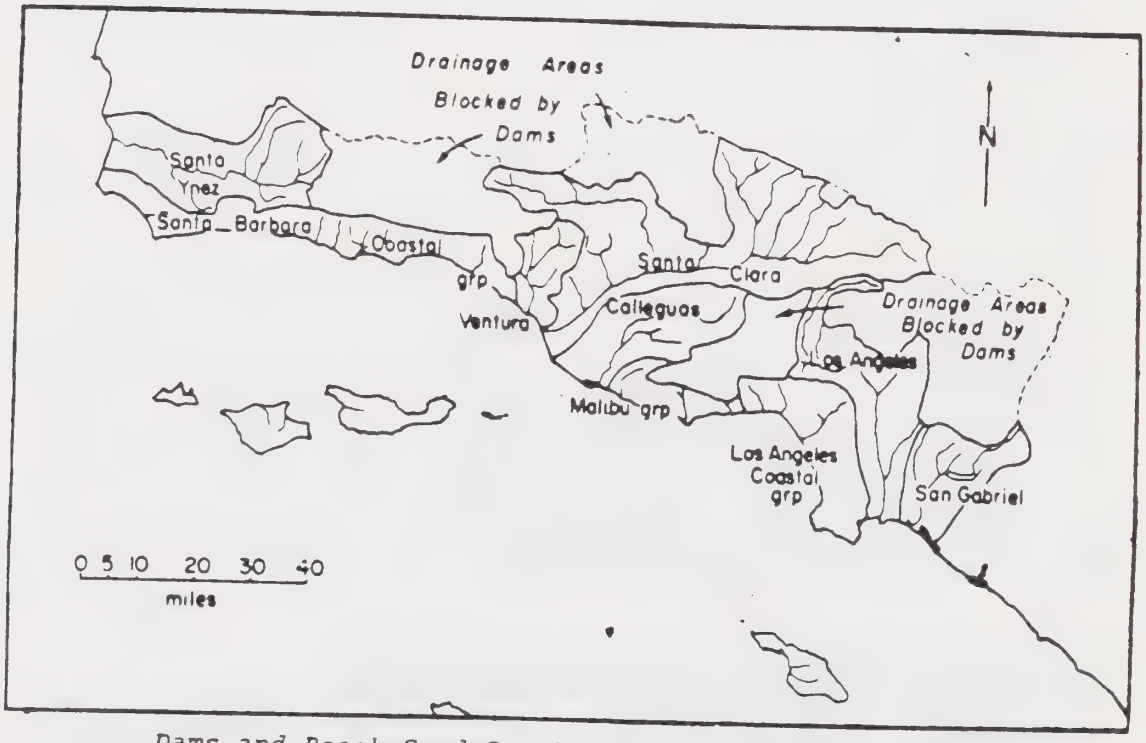
In addition to flood control projects and damming operations which provide sources of water and flood protection, river bottom gravel operations which "mine" river sediments for use in constructions can remove beach-destined sand supplies to a significant degree. For instance, one such operation, the Southern Pacific Milling Co. on the Ventura River, alone removes more that 5% of the remaining sands moving downcoast of the Santa Clara River (based on annual average), and more than 14% of the sand flowing between the Ventura and Santa Clara Rivers (Ventura County Planning Dept., July, 1974). As well as extracting sand which might have replenished beaches, mining operations create open pits which act as sand traps and prevent the trapped sand from moving further downcoast (Calif. Coastal Zone Comm., April, 1974).

Although development contributes an initial surge of sediments to streams, as urbanization encroaching

Illustration 6.2



Generalized coastal drainage basins in the northwestern half of southern California



Dams and Beach-Sand Supply in Southern California
Undammed or unobstructed portions of coastal drainage basins in the northwestern half of southern California
(As of 1964, does not include Castaic Dam)

upon flood plains becomes established, erosion is reduced because of the storm drains which immediately catch water and the grasses, paving and buildings which replace exposed soil. Bernard W. Piphen, a USC geologist, has stated in a general sense that: "What few studies have been conducted suggest that sediment delivered totthe beaches will be decreased by 30% by the year 2000, even if no more dams are constructed (Soucie, June, 1973).

Urbanization of areas adjacent to the stream sources of beach replenishing sediments can therefore be a major factor in beach erosion, apart from the flood control and water supply construction it demands In Orange County, rapid urbanization and channelization of watersheds for flood protection has necessitated the construction of groins and sand dredging and pumping in Seal Beach, Sunset-Surfside Beaches, Newport Beach and Doheny Beach at a cost in excess of $7 million over the last 5 years (Orange County Planning Dept., November, 1971). The significant reduction in sediment material derived from the Santa Ana, Los Angeles and San Gabriel tributory drainage areas caused by the intense encroachment of Southern California urbanization and other land use developments has necessitated artificial fill programs at Surfside-Sunset Beach. Without these beach fill programs, the shoreline at Surfside-Sunset would be under continous recession (U.S. Army, May, 1972).

Since the floodplains of Ventura County are still relatively undeveloped these effects of urbanization on beach sand supplies in Ventura County are far from their potential. However, in light of this fact it must alternatively be recognized that most of the sediment producing watershed in Ventura County is located in mountainous terrain unsuitable for urbanization.

It has been estimated that the Santa Paula Creek flood control project might reduce sand in the littoral drift circulation by less than 2%. Its effects might be diminished by the fact that given the tremendous amount of sand in the Santa Clara River and its steep inclination, the amount of water flowing in the river is really what determines the amount of sand carried to the beach (Ventura County Beach Erosion Study, July 1973). However, one must assess the cumulative effects of many such projects, as well as damming operations which withold water and the total effects of urbanization, in order to predict the irreversible impacts of inland development on beach sand supplies over a long period of time.

It may be said then, that long-term, continuing, general states of net beach erosion (which subsume short-term cycles) can have natural or man-induced origins.

We are probably in a general state of erosion at present in Ventura County, and human activites likely are a major contributing factor. The man-made impacts on beach sand supplies are for all practical purposes irreversible, and in the absence of remedial measures could continue at an increasing rate into the foreseeable future as the county becomes more urbanized in the flood plains, and particularly if more water impounding dams are built. The current extent of these human impacts in Ventura County can only be determined by new studies which are based on updated information reflecting more recent conditions, such as the construction of the Castaic Dam and the advent of the 1969 floods.

DETECTION

It is evident that beach erosion is a dynamic, ongoing process. It can have short-term, dramatic effects as well as long-term, more subtle effects. It can go through cycles of varying lengths of time, and can be part of a general trend over a very long period of time.

How you detect beach erosion, then, depends on exactly which aspects of it you wish to see. Shoreline recession from intense storms at sea can be estimated by the casual on-site observer, as long as he has a good idea of how far the beach extended before the storm. The elucidation of long-term changes or trends, including erosion cycles, require more continuous observation. Old aerial photographs, Army Corps studies, and even mission records can help trace historical changes to see what has happened in the past and what is likely to happen in the futue, by establishing a zone of shoreline fluctuations. This type of data usually isn't complete enough to trace exactly what trends have been dominant through time. However, it can help determine what areas have been most susceptible to erosion at various points in time, relative to the whole coast, and how much the width of these areas is capable of fluctuating.

Erosion susceptibility can also be estimated through the use of wave refraction studies, in conjunction with analysis of beach slope and grain size. A combined effort such as this would establish the relative magnitude of wave energy reaching various portions of the beach, and the resistance of these areas to the force of waves. Computer models simulating stream sediment transport and the littoral drift can help predict the effects of inland sand retention on the sand budgets of littoral cells, and the complete downcoast effects of protruding oceanic structures on the littoral flow.

Shoreline changes can be monitored exactly through a continuous program of aerial photography and measurement of onshore elevations and offshore depth contours. Small changes in the present could then be detected, and a baseline of data for uncovering long-term trends would be supplied for future reference.

GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

People have shown a natural affinity for the coastline. They locate their structures in close proximity to the ocean for purposes of easy accessibility to and close association with the marine environment, often removing natural protective barriers in the process. They are unlikely to be appreciative of the hazards to life and property involved with their decision to build on changing, impermanent land, if they haven't observed the beach over a long period of time. Man, in his eagerness to be close to the water, loses sight of the fact that land comes and goes, and that land which nature provides in a given period may later be reclaimed by the sea (U.S. Army, May, 1964). The end result is the direct destruction of homes and property as foundations are undermined by the advancing sea and the structures themselves are attacked by waves whose force is no longer dissipated by wide beaches.

The millions of dollars of damage caused by coastal erosion is borne not only by private individuals. The public sector suffers damages to streets and utilities which are supportive of beach development subject to erosion hazards.

SECONDARY EFFECTS

Since erosion reduces the protective capability of the beach against waves, it can increase the flooding hazard of areas of low land profile during storm activity. This is especially true where other protective barriers such as dunes have been removed. Flooding can imperil life as well as inflict property damage.

In certain cases, erosion can unearth septic tanks and cause effluent to run onto the beach and flush directly into the ocean, creating a public health hazard and a threat to marine biota as well.

Beach erosion can reduce the amount of recreational beach available to the public, particularly when sea walls are used to impede it. However, this is a lasting

effect only under conditions of general, long-term erosion, since the amount of beach available for recreation has always fluctuated. During periods of acute erosion, the land itself can be eroded away, permanently losing its soil to the ocean.

The cost to taxpayers is another secondary effect. The public must pay for street and utility damage, and funds rescue and clean-up operations. Low interest disaster loans continue the relief effort. Public agencies are afterwards called upon to spend large sums on erosion protection measures to avert further disaster and protect large investments which have encroached upon the beaches. In some cases, governing bodies are sued by homeowners for allowing development to have commenced in the first place in areas subject to erosion hazard.

DURATION AND EXTENT

The duration of hazard from beach erosion depends on a host of meteorologic and geologic factors. Most of the immediate hazard comes from storms, which can last several days or more, and cause severe erosion, flooding, and structural damage. However, a net erosion factor can prevail over several months or even many years, which in turn leaves the shoreline more susceptible to erosion and flooding and structures more vulnerable to wave damage. Continuing, long-term erosion can stem directly and indirectly from the urbanization of watersheds. The effects of urbanization on sand supplies is for all practical purposes irreversible, and in absence of remedial action could continue at an accelerating rate into the foreseeable future as flood plains become more urbanized.

The extent of hazard can be confined to several hundred feet inland from the mean high tide line, except for coastal flooding that is made possible by extensive erosion, which may spread over a considerable area in the coastal zone once the waves overtop physical barriers.

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

All beaches in Ventura County are subject to erosion to a certain degree. Even beaches stabilized by groins can erode, only at a slower pace. Erosion will accelerate in the future at all beaches if sand supplies to the coast are further decreased.

Areas which have in the last few years undergone

severe beach erosion are shown in Plate IV. This was taken from an inventory of beach erosion damage in Ventura County completed by the Department of Public Works in 1972.

HISTORY OF THE HAZARD

The history of beach erosion in Ventura County is sketchy, due to a lack of documentation. Unfortunately, there has been no ongoing shoreline monitoring program in the past, and the information has been evolved piecemeal. Some of what is available indicates that the shoreline does indeed come and go, and property has been damaged by beach erosion in Ventura County.

Records indicate, for instance, that the area between the Santa Clara River and Port Hueneme, which includes the Oxnard Shores area, advanced roughly 500 feet from 1856 to 1938 (U.S. Army, April, 1961), and more from 1938 to 1959. Consistent advance of this shoreline indicated that available sand supply had exceeded the transport capacity of littoral forces (U.S. Army, October, 1948). This trend towards shoreline advancement was reversed in 1959 at Oxnard Shores. The area was at its most seaward position from about 1955 to 1959, due to the 1938 and 1943 floods. From 1959 to 1972, the shoreline moved landward about 140 feet, and should continue to move landward at this rate (11 ft./yr.) for the next three years, until that time when the 1969 flood sands are expected to reach the area in large quantities (Moffat & Nichols, August, 1972). Subdivision activity began in 1959, and since then homes have been destroyed and utilities endangered (Oxnard Planning Dept., 1972). In February of 1973, Governor Reagan declared Oxnard Shores a flooding disaster area. Apparently, storms have caused millions of dollars worth of damage here.

Pierpont Beach similarly advanced 1,000 feet from 1856 to 1948 (Ventura Port District, August, 1953), reversing this trend by eroding 300 feet from 1948 to 1961, until stabilized by a series of seven groins constructed between the Ventura Pier and the Ventura Marina shortly thereafter. The entire area between the Ventura and Santa Clara Rivers lost approximately six million cubic yards of sand from 1938 to 1959 (U.S. Army, April, 1961). Still, this amount of recession didn't bring the beach back to the limit of the extremely narrow 1855 shoreline, and wouldn't have up to now even without the stabilizing groins (it was predicted in 1961 that Pierpont would reach the 1855 line at the then current rate of erosion by 1986). Construction was discouraged by erosion damage caused by storms in 1936 and 1938 (over $1,000,000 of damage was incurred at Pierpont in 1938), but the area has grown rapidly since 1950, giving rise to many homes which would have been under water in 1855 (See Illustration

6.3) (U.S. Army, April, 1961).

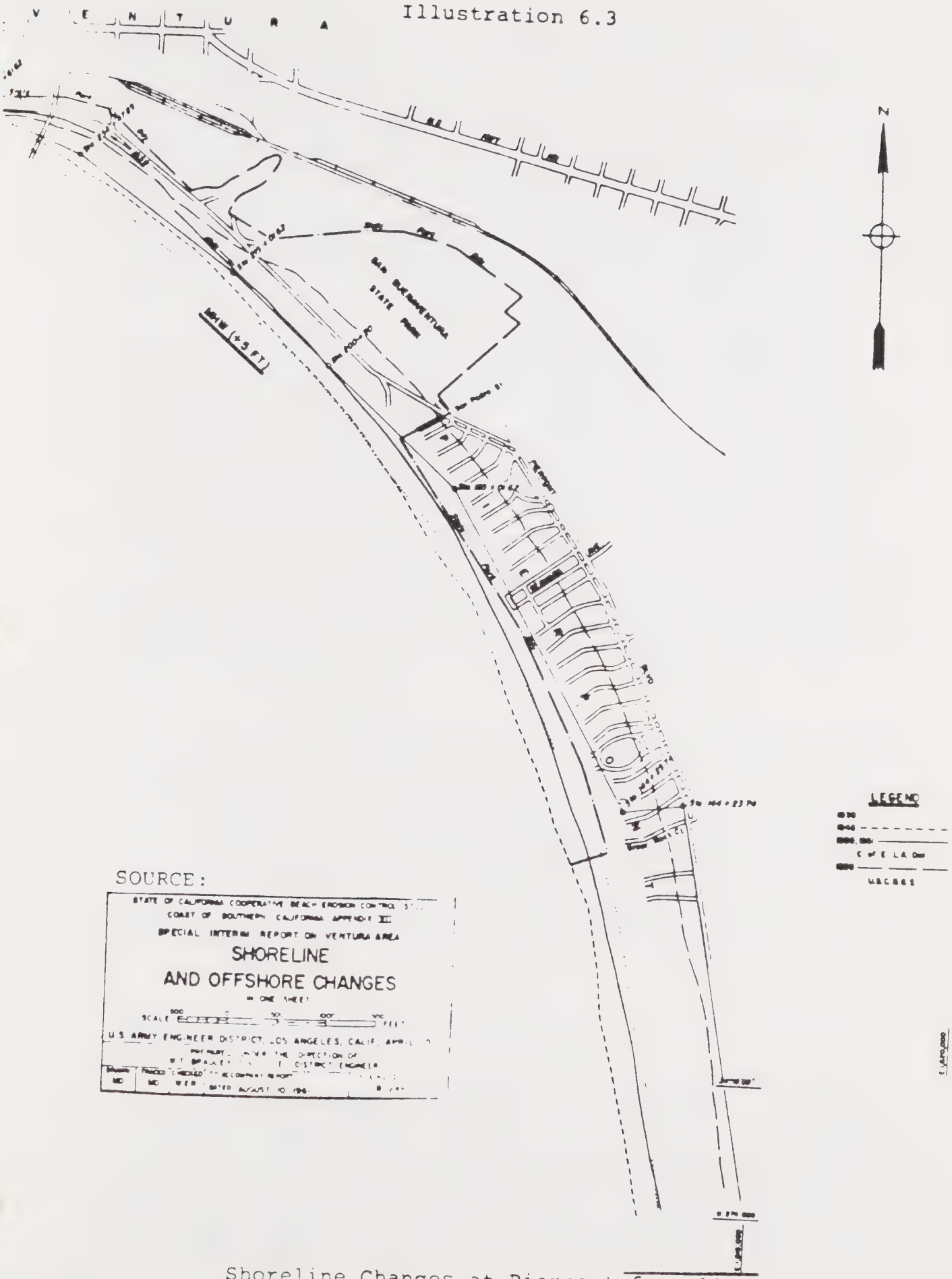
The lack of data before 1855 and between 1855 and 1938 on shoreline changes (a partial survey was made in 1869; other data may yet lie uncovered), leaves questions about the validity of these apparent trends. 1855 conditions may have resulted from a period of acute erosion following severe storm activity and may not be indicative of this time period. Whether or not the trends at Pierpont over the last century are indicative of the whole Ventura County coastline is questionable. More than a century ago the Santa Clara River migrated northward, causing convexity at its mouth, and acted as a groin, which may explain why Pierpont advanced steadily from 1855 (Ventura Port District, August, 1953). The width of the shoreline there is, therefore, very dependent upon the size of the adjacent Santa Clara River delta. In light of these facts, it is interesting to postulate that the Santa Clara is due for a shift to the south due to the continuing subsidence of consolidating sediments on the Oxnard Plain, but this is not likely to happen due to the construction of levees.

The historical occurrence of erosion induced by man-made structures has been documented as well. Subsequent to the construction of jetties at the entrance to Port Hueneme in 1938, the shoreline directly upcoast advanced 600 feet by 1948. During the same period the shoreline four to five miles upcoast receded 400 feet (Ventura Port District, August, 1953), and the shoreline directly downcoast from a seawall built adjacent to the east jetty receded 700 feet, the recession tapering to zero six miles downcoast. Prior to this construction, the beaches from Port Hueneme to Point Mugu receded and advanced an average of about 200 feet, with no apparent trend since 1855 (U.S. Army, October, 1948).

DEFINITION OF HAZARD ZONE

The beach erosion hazard zone will be defined as areas along the Ventura County coast which encompass beaches extending parallel to the shoreline along the areas designated in this report as being subject to severe beach erosion, and which extend from the mean high tide line of these beaches (Summer, 1974) 500 feet inland or to a distance where a rise of 15 feet in sustained elevation over the mean high tide line is first reached, whichever comes first. The 15 foot figure was chosen because it represents the verticle elevation susceptible to wave damage from maximum storm surge in combination with maximum wave height (8 feet and 7 feet). The 500 foot figure was chosen because while some broad, low-lying beaches may be protected from immediate wave damage several hundred feet inland, they nevertheless may erode many feet over a long period of time. Since Oxnard

Illustration 6.3



Shoreline Changes at Pierpont from 1855 - 1936

Shores is approximately 500 feet seaward from where it was in 1856, this indicates the erosion potential for this type of broad, low-lying beach in Ventura County.

Sites within the hazard zone might be suitable for certain structures if protected by a sizable barrier such as several rows of previously existing houses, or an extensive dune line. These sites would probably still be susceptible to flooding, however. A location set back well on a shelf of land of resistant rock under 15 feet of elevation and fronted by a very narrow sandy beach would also probably be suitable for development.

It is obvious that the erosion hazard increases along any shoreline with proximity to the ocean. It also must be kept in mind that all portions of sandy beaches are subject to erosion and can be classified in at least a low hazard zone. The beaches are created by the sea, and it has the ability to undo what it has done. Even groins which "stabilize" a beach serve only as a delaying mechanism against erosion caused by relentless processes (Orme, July, 1974). The 500 foot horizontal delineation should be regarded as conservative in the long run, in the face of a lack of knowledge which documents the full range of historical shoreline fluctuations, the continual alteration of shoreline configuration by man-made structures in the ocean, and the ever increasing adverse effect of human activities on beach sand supplies.

NATURE OF INFORMATION

The lack of information on historical erosion trends and current erosion susceptibility prohibits the detailed determination of local beach erosion hazard. A more fine-grained analysis would be enabled by filling in gaps in the historical data, from such possible sources as Army Corps records, mission records, and old aerial photographs. The location of areas currently undergoing severe beach erosion, as determined by Public Works in 1972, will have to be updated as erosion patterns change in response to changing natural and human influences on the shoreline.

GENERAL MANAGEMENT RESPONSIBILITY

The Army Corps of Engineers is currently conducting a study on the Ventura County littoral drift and related problems. Their report is due by 1978, and will inventory current erosion problems and recommend solutions. For planning purposes, it hopefully will also provide a certain amount of predictive capability for estimating future shoreline conditions, by projecting natural and man-made processes which effect beach changes.

Major flood control and erosion correcting measures are almost always undertaken by the Army Corps of Engineers. As a prerequisite, the County must first request assistance from the Corps, after which the Corps then seeks approval from Congress for federal funding, which covers construction costs on the order of 50% for beach erosion projects, and up to 100% for flood control projects of regional significance. Local and state agencies pay for right-of-way and utility relocations. The County Public Works Agency lends coordinative and technical assistance to the Corps for major projects, and also undertakes flood control projects of a lesser significance. It is now Board Policy that the County Parks and Recreation Department manage the use of beach erosion corrective measures for County property. The Public Works Agency will lend technical and coordinative assistance to this end. The State has also been known to construct erosion impeding structures, such as the rip rap wall at Seacliff.

Local government agencies charged with land use regulation are responsible for managing the placement of structures and facilities in undeveloped areas subject to beach erosion. Their actions ultimately determine whether or not there is going to be an erosion problem, whether or not measures will be necessary to protect endangered property from erosion. Additional incompatible land uses can be kept out of erosion hazard zones through the various land use regulatory devices at the disposal of local governments, supplemented by the environmental impact review process.

The Flood Control Department of the County Public Works Agency also has limited responsibility for flood plain management in the County. The cities do as well, when flood plains comes under their jurisdiction. By regulating urbanization in the flood plains, there could be less of a need to protect development from floods through flood control structures, and the effects of urbanization on sediment production in the flood plain could be lessened.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

The hazard zone is located in the vicinity of Seaside Park. At this location, the hazard zone extends inland 500 feet. However, at Seaside there is only a very narrow sandy beach backed by cobbles and some rip rap, which abruptly grades into either a land terrace or the Promenade. This area would be expected to be fairly resistant to erosion, especially where it is overlain by the Promenade.

LOCAL RESOURCES AFFECTED BY THE HAZARD

Continued erosion of Seaside may imperil the newly constructed Promenade owned by the City of San Buenaventura (Ventura County, June, 1972). Although this area is relatively erosion-resistant, very little erosion would subject the Promenade to direct wave attack, particularly if the rip rap is washed out and not replaced. Damage to the Promenade would depend upon its construction. Permanent loss of park ground would also ensue with continued erosion in the area.

FINDINGS

PROBABILITY OF OCCURRENCE

Beach erosion occurs over varying time spans with varying rates of incidence. Some erosion is correlated with changes in the weather and other natural phenomena. There can be short-term, rapid erosion from storms, seasonal and tidal fluctuations, and cycles which cover 25 years or so and are correlated with sunspot activity. Short-term erosion can also be man-induced, as from groins and jetties. There are also long-term, continuing trends of erosion which can have natural and/or human origins. Shoreline fluctuations which occur over the shorter time periods are much easier to predict than the longer trends because they occur more often, and more is known about them. However, a continuing, long-term, general state of erosion at County beaches may become dominant in the future if the increasing urbanization of the County subtracts further from the amount of debris-producing areas in the flood plains of the County, and leads to additional stream development and, most importantly, water-impounding dams. This would particularly be true if the human impacts on beach sand supplies are not offset in the future by the occurrence of major flood flows, such as the 1969 floods.

SEVERITY OF THE HAZARD

Beach erosion occurs with varying degrees of severity. Tidal fluctuation cause little change in beach profile, while major storms, particularly when at high tide, can cause the coast to rapidly recede. Long-term trends may be undiscernible to the casual observer, but may have catastrophic effects when they result in the erosion of many feet of beach over a long period of time. Erosion severity can change from place to place along the coast at any one point in time, in response to changing wave patterns and geomorphological features.

Based upon past history of other areas of Southern California, it can be said that as urbanization of the county increases in the future, the general severity of incidences of erosion will also increase. However, remedial measures taken by proper management of water resources and sand supply, and the future occurrence of major flood flows, could reduce the hazard.

RESOURCES AFFECTED

Erosion can undermine the structural foundation of buildings within the hazard zone, and allow waves to damage the structures themselves. Supportive facilities can also be damaged or destroyed. Good soils from the

land itself can be permanently eroded away if all of the sandy beach with its protective capability is removed. Seawalls installed to protect structures have the effect of decreasing recreational beach seaward of the wall. Normally, natural features such as beaches and sand dunes affected by beach erosion free from human origins are usually restored by natural processes over time. The total amount of recreational beach available over time can be reduced by those human activities which induce general, continuing states of beach erosion.

NATURE OF INFORMATION

The information used in this report, namely current inventories, research papers, and historical studies, was adequate to establish a general erosion hazard zone and predict a worsening of future conditions. More detailed information is needed to establish more fine-grained hazard zones sensitive to local conditions, and anticiapte future erosion with more accuracy. Hopefully, the Army Corps study due in 1978 will be informative in this way.

OTHER FINDINGS

The portion of Seaside Park currently being used as a parking lot will be upgraded and landscaped in the near future. It will not be protected against erosion, but few resources would be affected by acute erosion here since only small financial investments will be made.

Although most of the Pierpont area is stabilized by groins, it must be cautioned that groins only serve as a delaying mechanism against erosion caused by relentless processes. They are of limited usefulness for beach building in the face of a depleted sand supply, and in such case serve to impede the rate of shore recession at the site of the groins (U.S. Army, August, 1971). Groins have to be maintained to sustain their effectiveness. Two winters ago, emergency measures were needed to remedy erosion which took place at Pierpont because of material which was taken from one of the groins (No. 1) for construction of additional groins. Rip rap was placed between two of the groins and filled over with sand. The Ventura River delta, built out by the 1969 floods, and which replenishes both Seaside and Pierpont, has almost completely washed away. Increased erosion will likely occur in the years to come at both Seaside and Pierpont unless some more large floods occur.

SEISMIC
SAFETY

LIQUEFACTION

and lo, there was a great earthquake...
and every mountain and island were moved
out of their places.

Revelations, Chapter 6
Verses 12 & 14

GENERAL DISCUSSION

GENERAL DESCRIPTION

By far the greatest threat from an earthquake is the ground shaking that is produced and the resulting direct and indirect effects on manmade structures. In some earthquakes ground shaking results in ground failure, which can have catastrophic effects on structures. Ground failure is most often caused by liquefaction and can occur on relatively level ground.

Liquefaction can occur when loose cohesionless, uniform soils saturated with water are subjected to ground shaking of high enough intensity and long enough duration. Liquefaction is manifested either by the formation of sand boils and mudspouts at the ground surface and the seepage of water through ground cracks, or in some cases, by the development of quicksand-like conditions over substantial areas. When the quicksand-like conditions occur, buildings may sink substantially or tilt into the ground (see illustration 8.1 and lightweight buried facilities may float to the surface. (Seed, 1969) Other manifestations are landslides which can move hundreds of feet and lateral earth spreading of tens of feet.

Illustration 8.1

Tilting of apartment buildings, Niigata, Japan (1964)

A number of conditions are necessary to produce liquefaction. These include low density of the soil, uniformity of grain size, confining pressure, saturation of the soil materials with water, the intensity of the shaking and the duration of the shaking. In terms of density of soil, loose soil materials are most subject to liquefaction. Uniformity of grain size, such as a deposit of only sand, causes materials to be more susceptible to liquefaction than well graded materials. The deeper in a soil zone, which is susceptible to liquefaction, the higher the confining pressure will be and consequently, the potential for liquefaction is reduced. The soil must be saturated with water for any other conditions to apply.

Depending upon the confining pressure and the specific soil conditions, a certain intensity of shaking is required to trigger liquefaction. Intensity depends on the magnitude of the earthquake and the amplification of the ground shaking. Finally, the duration of the shaking is also important, as it takes a certain number of cycles of ground shaking for liquefaction to occur. The landslides of the 1964 Alaskan Earthquake did not occur until 90 seconds after the shaking started (Seed and Indriss, 1972). As compared to the 1971 San Fernando Valley Earthquake, where landslides were triggered after only 30 seconds of shaking.

Technically speaking, when a saturated sand is subjected to the necessary amount of ground shaking, it tends to compact and decrease in volume; if drainage cannot occur, the decrease in volume increases the pressure of the contained water. If the pressure reaches a point equal to the over-burden pressure, the sand loses strength completely, and develops into a liquefied state (Seed, 1969).

Liquefaction can occur at any level of a deposit but usually occurs within the first 40-50 feet. The potential for liquefaction exists wherever there are saturated loose sand deposits, especially if they are near the surface.

GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

There are two major kinds of liquefaction. The first is where surface or near-surface liquefaction of soils occurs. Structures whose foundations are within such a liquefaction zone lose support under part or all of their foundations, which causes them to tilt or settle into the ground surface. If a building is not designed to take this amount of stress, the entire building may collapse. A partially liquefied layer can also flow out from under the weight of the foundation with similar settling effects. As a general rule, for structures not designed against liquefaction, the larger the structure the greater its potential for settling through liquefaction during an earthquake. Thus, while differential settling may affect almost any structure, smaller buildings such as single family frame homes are not likely to suffer major damage except in situations where the water table is less than fifteen feet from the surface. Larger buildings not designed against liquefaction, however, can be severely affected at almost any level down to about forty to fifty feet below the surface, as loss of frictional support of deep pile foundations can occur. In addition, light sub-surface structures such as pipelines and storage tanks can float to the surface during the ground shaking, causing further damage and potentially widespread dislocation of services.

The second type of liquefaction occurs when the soil layer that liquefies is below the surface. As the soil compacts under the ground shaking of the earthquake, the hydrostatic pressure increases. This pressure is usually relieved by the flow of water and soil to the ground surface. If the flow is small and the areas localized, the effect on the surface is that of sand boils and mudspouts which can last for a number of hours after the earthquake. However, if the flow is large and general, it will induce a 'quick' or liquefied condition at the surface, with the same results as surface liquefaction. If the subsurface liquefaction occurs on a slope, the liquefied layer can act as a lubricated plane for the layer above it to respond to gravity and move downhill. The effect is even more pronounced if the water cannot escape vertically and is forced horizontally along a contact surface. This type of liquefaction is a common cause of earthquake-induced landslides. Structures built across the edges of the slide are torn apart in much the same manner as if they were located on a fault (See illustration 8.2, p. VIII-6) a good example of this occurred

in the 1971 San Fernando earthquake where the Juvenile Hall slide was caused by liquefaction of a subsurface layer. An area of almost 163 acres moved down a 2.5% slope causing damage of over $30 million. Movement down a slope with such a low gradient had not previously been recorded, but such effects must be considered in future earthquakes.

The liquefaction also often causes settlement of the soil. In Niigata, Japan, after the 1964 earthquake, settlement of over 3 feet was common. In Alaska, the ground around one wellhead settled 4.5 feet.

SECONDARY EFFECTS

Liquefaction could destroy or disrupt much of the infrastructure (i.e., gas lines, water, sewer, roads, etc.) in an area. Pipelines could be broken either by being floated to the surface or by landslide displacement. Bridge abutments could suffer differential settlement, cutting off roads. The settlement of large areas of land could drop some areas below sea level and produce a new shoreline, or at least require reconstruction to re-establish continuity of roads, etc. (see subsidence hazard).

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

The hazard exists wherever there are certain soils, particularly loose sand soils, that are constantly or seasonally saturated with water. This might include most of the river valleys and the low lying plains areas that have poor drainage (Hazard Plate V). Since subsurface soil properties are not precisely known, it is necessary to assume that all alluvial areas having high groundwater may be subject to liquefaction during strong earthquake shaking.

Most of the Oxnard Plain and Pleasant Valley have these characteristics and therefore, must be considered to have a very high liquefaction potential. Virtually all of the low lying areas in the Ventura River drainage appear to have these characteristics as does most of the Santa Clara River. Simi Valley appears to have a high liquefaction potential in both the east and west basins and the latter has water wells that are freely flowing at the present time. Most of the remainder of the Calleguas Creek areas appear to have adequate drainage to avoid the hazard, except for the lower Arroyo Conejo.

The lower Arroyo Conejo may have an increasing problem because the discharge from the Thousand Oaks sewage treatment plant contributes to higher groundwater levels in the western Santa Rosa Valley area and along the Arroyo further to the west. Thousand Oaks may have problems in the low lying valley areas, including Hidden Valley, because of their alluvial nature.

Most of the beach areas of the County including the entire coastline from Point Mugu to and including the Ventura River delta are probably underlain by loose water-saturated sands and other alluvial deposits which could be subject to liquefaction during strong earthquake shaking. Low-angle landsliding or lateral spreading along the beach areas could occur as a result of liquefaction of these deposits. In addition, landsliding could occur within and adjacent to the submarine canyon areas (see Hazard Plate V).

HISTORY OF THE HAZARD

Liquefaction has not yet been a damaging hazard in Ventura County, but along with its attendant ground shaking, it is possibly the biggest seismic threat in the County.

Some experience from other areas will possibly provide an insight into the potential effects of liquefaction on Ventura County. The effects of liquefaction was well illustrated by the Niigata earthquake of 1964 (See illustration 8.1). The structural damage was severe and there were numerous other damaging effects such as sand eruptions, water flows, landslides and settling of the ground surface.

In the Alaskan earthquake of 1964, there were numerous bridge foundation settlings, but the most severe damage was from the Turnagain Landslide, which was caused by liquefaction (See Illustration 8.2). The most startling discovery of the 1971 San Fernando earthquake in regard to liquefaction was that major slides could occur on slopes with an inclination as low as 2.5%.

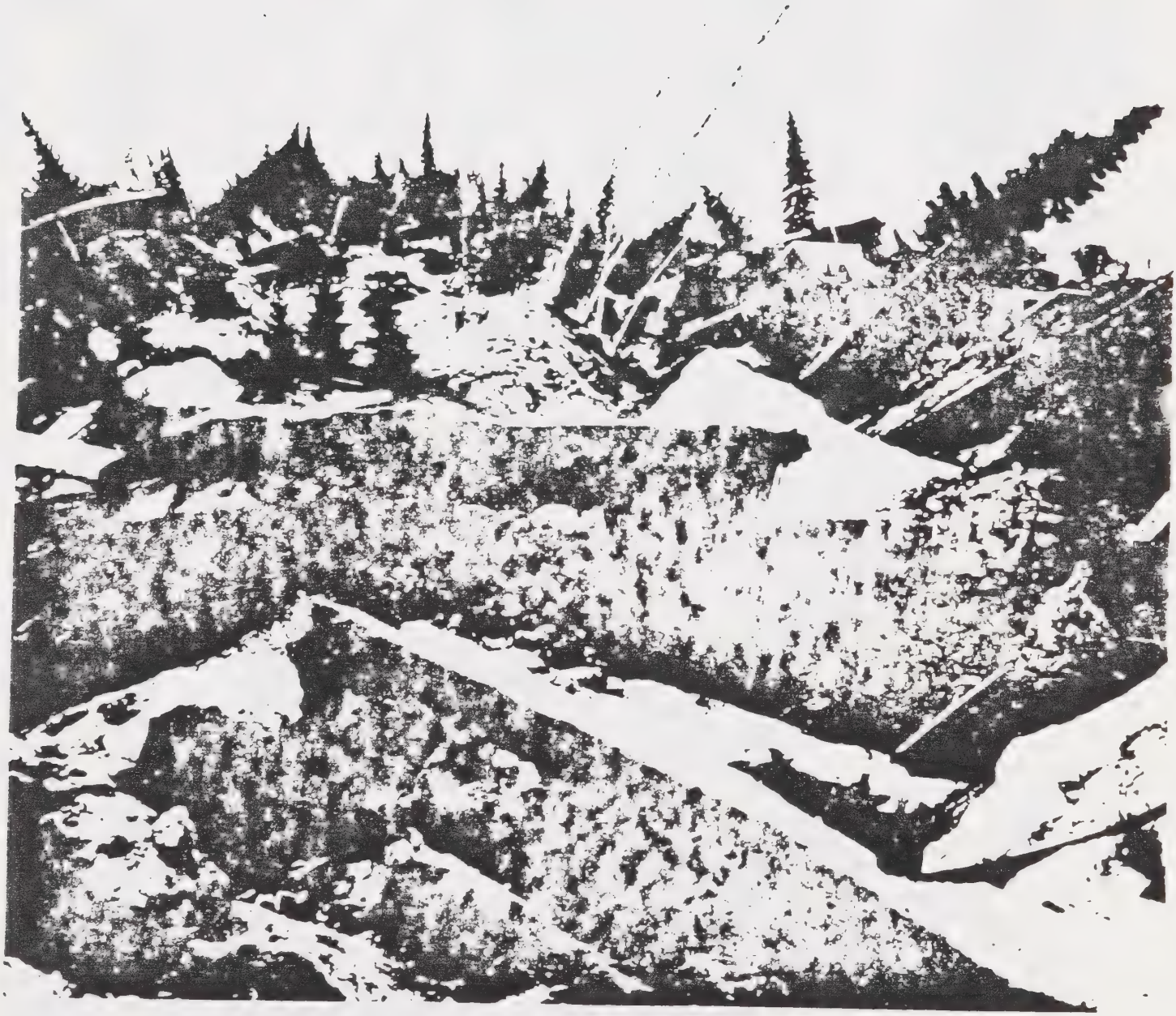
Locally, liquefaction occurred in Calleguas Creek, Mugu Lagoon and the lower Santa Clara River during the February 21, 1973, Point Mugu Earthquake. The effects were mainly the development of minor ephemeral features such as shallow cracks and sand boils, but as Morton and Campbell point out in their report (California Geol., Dec. 1973) if the "shaking had been more severe, such effects might well have been widespread and could have resulted in significant agricultural crop losses". Also, the effects on structures could have been significant also.

Illustration 8.2

Eastern Portion of Turnagain Slide

SOURCE: U.S. Army photograph

Turnagain Heights, Anchorage



This photo well illustrates the spectacular slide damage caused by the March 27, 1964, earthquake to the roadway and homes in this suburban development.

Eyewitness reports of the effects of the 1857 Fort Tejon Earthquake (magnitude $\pm$ 8.0) on the San Andreas Fault suggest general liquefaction occurred along the Santa Clara River, along with other damage.

DEFINITION OF THE HAZARD ZONE

Since soil properties are not precisely known all alluvial deposits must be considered to be subject to liquefaction until investigation proves otherwise. Consequently, areas which are designated as within the high hazard zone are alluvial areas which have had water table levels within 15 feet of the ground surface at some time in the last fifty years or since well records have been kept. The moderate hazard is defined as including alluvial areas which have had water between 15 and 40 feet of the surface.

Large areas of the county have a surface layer of unconsolidated sand deeper than 40 feet and the entire county is susceptible to possibly severe earthquake shaking. Therefore, the primary variable factor for liquefaction in the County is the depth of the water table. The water level varies, but to be conservative, the highest level was selected. This is reasonable in urbanized areas where the water table is usually rising due to a number of factors including; curtailment of pumping; importation of increased amounts of water; reduced evaporation due to paving; heavy irrigation from watering of yards; percolation of sewage, etc.

The threat posed by this hazard varies depending upon the seasonal water level in some areas. The hazard zones designated assume that water levels are at their highest.

The significance of the water level being less than 15 feet from the surface is that in this range even small structures such as single family residences could be affected by liquefaction. This is the level at which the most severe liquefaction damage occurred in the 1964 Niigata, Japan earthquake. The 40-foot level corresponds to approximately the deepest level at which liquefaction most commonly can occur and is the level above which most building foundations are constructed, except for important structures.

NATURE OF THE INFORMATION

Data on the water surface level was taken from the extensive well records maintained by the Hydrology Section of the Ventura County Department of Public Works. These well records include up to 50 years of actual measurements at approximately one-month intervals.

Certain areas did not have usable well records. For these areas, either other special reports were used or actual field data was collected. One of the areas so field checked was Pleasant Valley. Alluvial areas are shown on Plate I of the State Division of Mines & Geology report entitled: Geology and Mineral Resources Study of Southern Ventura County (1973).

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATIVE

The Ventura County Department of Public Works and the Public Works Departments of the various entities have primary responsibility for further investigation of the liquefaction hazard. The California Division of Mines and Geology in their cooperative study during the next year will investigate the hazard further. The California Department of Water Resources and the U. S. Geological Survey have ongoing projects to study groundwater and water table levels that affect liquefaction potential. Further research by federal and state agencies should be undertaken to more precisely determine the location and magnitude of the hazard as well as possible methods to counteract it.

ALLEVIATION

There is little that can feasibly be done to reduce the regional hazard. Important or critical structures can utilize special designs to alleviate the effects of the hazard except possibly in areas subject to landsliding. Land use controls are the only other methods available to reduce the threat to life and property. Whether or not land use controls are instituted by the Planning Commissions and City Councils or the Board of Supervisors depends upon these entity's perception of the probability of the hazard occurring, the costs of restricting land uses and their concept of acceptable risk.

Present Subdivision, Grading and Building Ordinances require geologic and soils hazards, such as liquefaction, to be considered in the design of land developments and construction of important or critical structures as well as single family homes where necessary.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

The high hazard zone, as designated on Hazard Plate V, covers part of City near the Ventura River and all of the beach areas and the area north of the Santa Clara River. The moderate hazard zone bounds the high zone on the northeast except in the Pierpont area, where the high hazard zone directly abuts the cliff.

LOCAL RESOURCES AFFECTED BY THE HAZARD

Several important and critical public and private facilities are within the affected areas of the city. The greatest risk to people exists in the schools located in the hazard zone. There are four elementary schools and a Junior High school in the hazard zones, although the Avenue School and De Anza High are in the moderate zone.

Other large gathering places and public facilities in the high hazard zone are: (1) Ventura County Fairgrounds, (2) the Holiday Inn, (3) the proposed Motel Six in the Pierpont area, (4) the Police Department, (5) the Ventura Marina complex, (6) the sewage treatment plants and (7) a fire station on Ventura Avenue.

The moderate hazard zone contains: (1) an older hotel, (2) some county offices, and (3) another fire station.

The agricultural area north of the Santa Clara River, both golf courses and the beds of both the Santa Clara and Ventura Rivers and their attendant natural associations, could be disrupted by liquefaction under heavy ground shaking.

The structures and areas listed above are simply those that are located within the boundaries of the hazard zones on Hazard Plate V. The information used to define the zones was the best available but does not allow precise delineation of the hazard areas. Also the boundary lines represent a transition zone which fluctuates seasonally and with changes in water supply. Therefore, those facilities listed are not the only ones that could be affected by the hazard. These, however, should be studied first when alleviation of the hazard is considered because of the higher probability of them being affected by the hazard.

FINDINGS

PROBABILITY OF OCCURRENCE

Liquefaction occurred all along the Santa Clara River during the Fort Tejon Earthquake of 1857. This earthquake had a magnitude of ±8 on the San Andreas Fault. Another earthquake of a similar magnitude is predicted by many experts within the next fifty years. Localized liquefaction occurred in the lower Santa Clara River during the 1973 Point Mugu Earthquake which had a magnitude of much less than the Fort Tejon Earthquake but was centered in this area. More earthquakes of this size are possible in the County at any time and almost any of them would effect Ventura.

SEVERITY OF THE HAZARD

Loose, water-bearing soils within the city could be subject to amplified shaking. The resulting failures could be in the form of liquifying, cracking, lurching, slumping and shallow landsliding. There are indications that the western part of the city may be particularly susceptible to low angle landsliding or lateral spreading caused by potential liquefaction. If general surface liquefaction were to occur, most structures in the hazard zone could be affected to a greater or lesser degree. However, the estimated effects of liquefaction may vary within a given zone during a given earthquake.

RESOURCES AFFECTED

The Ventura Avenue area, a part of the downtown, beach and coastal areas, the marina and the Santa Clara River are potentially affected. There is a significant number of schools and other vital facilities located in the hazard zone and more are planned. Unless structures are adequately designed to resist the potential effects of the hazard, structural damage resulting from the effects of liquefaction, could occur to public and private structures and vital utilities within the city in the event of a severe earthquake.

NATURE OF INFORMATION

The water table levels in alluvial areas were arrived at by taking the highest figure measured from the extensive records of the Hydrology section of the County Department of Public Works. The boundaries of

the hazard zones are only approximations and are not accurate enough upon which to base any building code requirements. In addition, the estimated effects of liquefaction may vary greatly within a given zone during a given earthquake. Any specific conclusions should be reached on the basis of detailed site-by-site soils and geologic studies.

There are indications that the hazard may be more extensive than is indicated on Plate V. However, detailed information about water table levels is not available. This is particularly true of the areas near the foothills, from the downtown east to Saticoy area.

Additional information concerning water levels and more detailed determination of areas susceptible to soil liquefaction during earthquake shaking is needed for land use planning and determination of existing hazards.

The hazard zones delineated on Hazard Plate V should be the basis for further detailed soils engineering studies and investigations on a site-by-site basis.

OTHER FINDINGS

Future development plans within the City should be carefully evaluated due to the hazard imposed by the potential of soil liquefaction. Within the hazard zone, high rise structures may have a higher risk of damage than single story buildings. There could be substantial structural damage in the designated hazard zones, and perhaps in other areas of the City, in the event of general liquefaction. Further investigation could define these hazard areas more distinctly.

SEISMIC
SAFETY

TSUNAMI

"Wherein I spoke of most disastrous chances of moving
accidents by flood and field of hair-breadth 'scapes i'
the imminent deadly breach"

Othello I

Shakespeare

GENERAL DISCUSSION

GENERAL DESCRIPTION

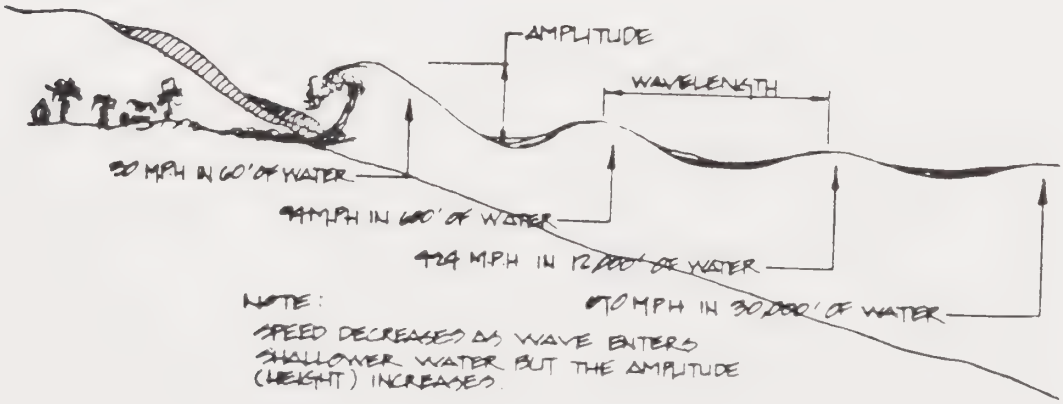
PHYSICAL PROPERTIES

Tsunamis (pronounced soo-nom-ee) are large ocean waves that are generated by submarine landslides, volcanic eruptions or earthquakes in or near ocean basins. These waves are commonly referred to by the general public as tidal waves.

The term "seismic sea wave" applies to a tsunami caused by an earthquake. These waves have a long wavelength (distance from the crest of one wave to the crest of the succeeding wave), normally over 100 miles and a very low amplitude (height from crest to trough).

As these waves approach shallow water, the speed decreases from a deep water speed of over 600 m.p.h. to less than 30 m.p.h. as they move across the beach. The energy however, is transferred from wave speed (velocity) to wave height (amplitude) and waves as high as 100 feet can be formed.

Illustration 9.1
Characteristics of a Tsunami or Seismic Sea Wave



The waves can arrive on shore in intervals of up to an hour and since there are usually a number of waves in a set (rather than just one) the threat usually exists for as long as 10 to 12 hours. Tsunamis are sometimes preceded by a trough which frequently brings the curious down to the shore to examine what appears to be an extremely low tide. The wave itself, may follow the trough by 15 to 45 minutes. Tsunamis can also travel considerable distances inland on waterways, particularly those with shallow gradients.

DETECTION

The Seismic Sea Wave Warning System (SSWWS), directed by the Coast and Geodetic Survey, is the primary source of tsunami detection. This system has been in operation since 1948. The SSWWS and cooperating foreign countries operate a system of seismographs and tide stations. This system includes automatic seismic alarms that are triggered whenever an earthquake of sufficient magnitude to generate a tsunami is recorded, since earthquakes produce the vast majority of tsunamis. The SSWWS Honolulu Observatory determines the location of the quake by using the local arrival time of different earthquake waves. If the quake is in or near the Pacific Basin a Sea Wave Advisory is issued, along with estimated times of arrival of tsunamis. (See illustration 9.2)

Although the arrival time of waves can be predicted, the intensity of the wave when it reaches shore cannot be predicted. Until the 1960 Chile tsunami, which caused hundreds of deaths in Japan, it was not known that a tsunami of such distant origin (10,000 miles) could produce such devastating effects in Japan. In other instances, extensive damage can occur in one area while causing negligible damage in adjacent areas.

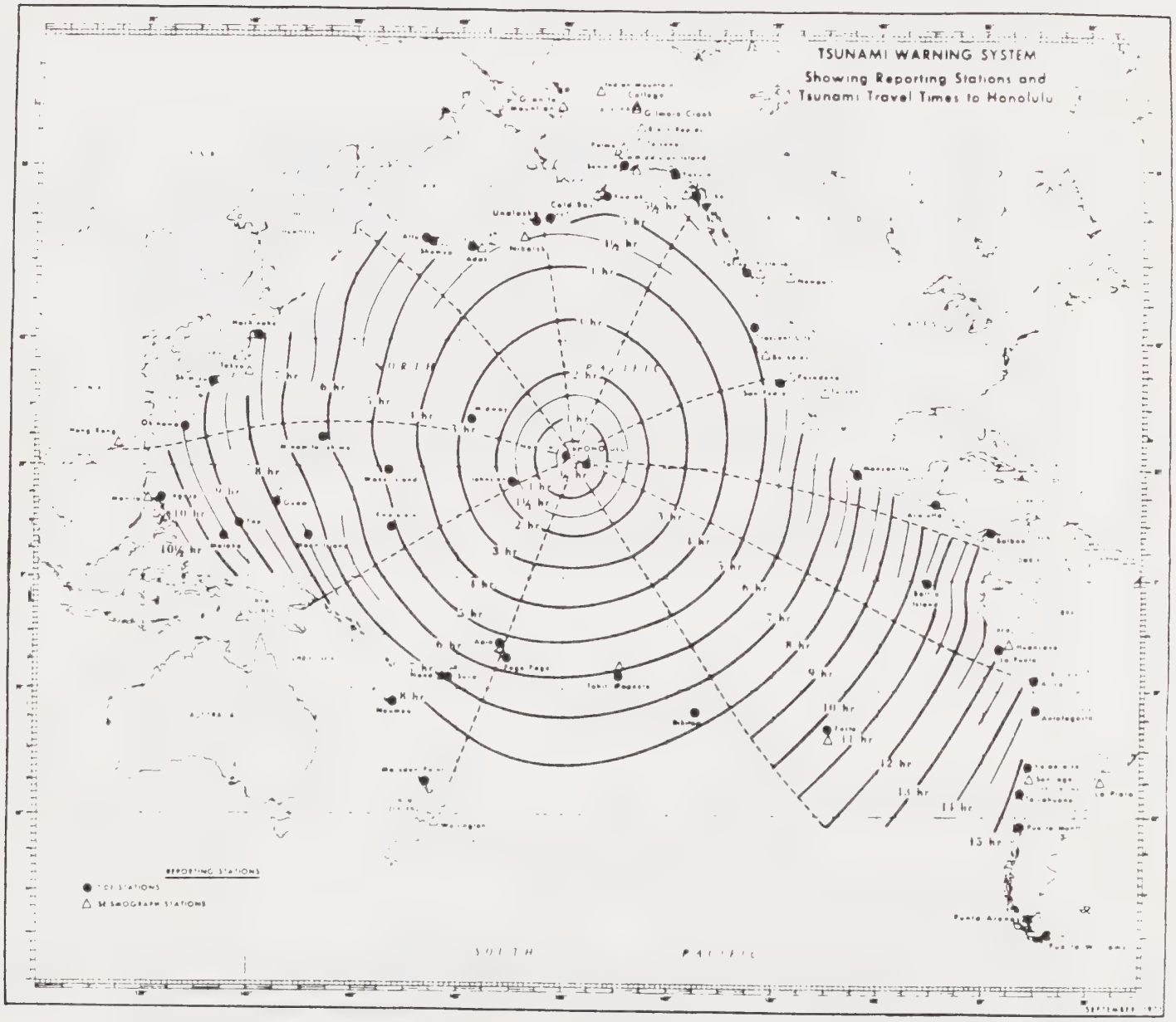
GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

Tsunamis are a threat not because they are so extensive or frequent, but because the destruction they cause can be devastating. The danger is also compounded by the fact that the intensity of the wave is unpredictable and the threat is intermittent over many hours.

The tsunami threat is mainly confined to the immediate beach areas, except in river channels. Beach areas have been affected up to a mile or more inland in very flat areas.

Illustration 9.2
Tsunami Warning System Map, showing reporting stations and Tsunami travel times to Honolulu from possible distant origins of such waves.



Source: National Oceanic and Atmospheric Administration - NOAA.

Tsunamis can also proceed up flowing rivers for many miles if the gradient of the river is shallow. The effects of the waves are most noticeable on man-made features and these effects are usually temporary. But the waves can also change river channels and modify coastal landforms and these effects are noticeable for many years. There is no way to avoid the damage to features in the path of a tsunami, but when there is enough time for a warning to be issued, there should be no loss of life if the necessary precautions are taken. These waves are not common in California and, therefore, the recurrence interval seems to be large; however, the historical record is not extensive enough to develop predictions.

SECONDARY EFFECTS

The immediate or primary effects of a tsunami are easily visualized but the secondary effects can be unanticipated. Water systems can be contaminated, power disrupted, transportation systems blocked or dislocated, increased occurrence of fires from broken oil and gas tanks or lines, flooding from blocked rivers, etc.

DURATION

The assault on the shoreline from a tsunami is relatively shortlived, but because the waves come in succession over a period of up to 10 to 12 hours the duration of the threat is quite long.

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

All of the coastal areas in Ventura County are susceptible to tsunamis. A tsunami from the north Pacific could move down the Santa Barbara Channel and affect the northerly coastal areas; a seismic sea wave from the South Pacific or from South America could strike the County coastal areas from the south to southwest; and a tsunami generated along one of the faults within the Santa Barbara Channel could affect much of the County coastal areas. The Channel Islands do not provide adequate protection for the County coastal areas.

HISTORY OF THE HAZARD

The worst recorded tsunami to hit California was in 1812. An earthquake occurred in the Santa Barbara Channel, and the resulting waves are reported by some disputed sources to have been up to 50 feet above sea level at Gaviota (Richter, Pg. 113),

35 feet above sea level at Santa Barbara. They were probably at least 15 feet above sea level at Ventura.

Crescent City has been the scene of numerous recorded seismic sea wave incidents. Widespread damage and some loss of life occurred in 1964 following the Alaskan Earthquake. Tsunamis from that earthquake also destroyed a number of towns in Alaska and caused over $1/3 million damage to the Los Angeles-Long Beach harbors and approximately $35,000 damage to the marinas in this County. The marina damage in Ventura County, which was mainly to the channel banks, was caused by the rapid and extreme changes in sea level.

The historic record indicates that there is a small probability of occurrence of a major tsunami in Ventura County. Statistically it has been over 160 years since the last major tsunami; but many smaller, unrecorded tsunamis may have occurred.

DEFINITION OF THE HAZARD ZONE

The uncertainty of local effects makes the definition of the hazard zone difficult, but the east-west trending faults in the Santa Barbara Channel area seem to intensify the hazard parallel to them, thus increasing the possibility of high waves in the north and south coast areas.

The hazard zone defined by this study, therefore, includes all areas of the County up to 20 feet above sea level and within one mile of the mean high tide line. Areas of exception are: east of Point Mugu and north of the Ventura River where the zone includes all areas up to 30 feet above sea level and up to 50 feet above sea level, respectively.

The basis for the location of the hazard zone on the Oxnard Plain is the estimated 15-foot high wave of 1812. To be slightly conservative, however, the hazard zone in this region is extended up to 20 feet in elevation. This estimated level will allow for the probable subsidence of the plains area as well as a possible rise in sea level since 1812. It is possible that waves larger than those ever recorded could occur, but there is no way to predict what level they would reach.

The recommended areas of evacuation in the event of a tsunami are all areas below the aforementioned elevations or within a mile of shore (whichever is of the greatest inland extent), and two miles inland on the Santa Clara River, Ventura River, and Calleguas Creek. The reason for extension of the zone two miles upstream from the mouths of these watercourses is that a tsunami can generate a bore (a wave moving upstream) in flowing water and travel farther inland.
(See Plate V)

NATURE OF INFORMATION

Information on the tsunami of 1812 is from mission records at Santa Ynez, Santa Barbara, and San Buenaventura. The most recent information seems to discredit much of the information from Santa Ynez and Santa Barbara since it was from witnesses whose rememberences were recorded many years after the event. However, the records from Ventura were recorded at the time of the event and are believed much more accurate. The historic data on tsunamis in Ventura County, while limited, is generally accepted as accurate. With other factors taken into consideration, the hazard zone was defined using the latest geologic data and is the best estimate obtainable using the given data.

GENERAL MANAGEMENT RESPONSIBILITY

There is no known way to end or even to feasibly mitigate the tsunami hazard. Since the occurrence of tsunamis are very infrequent and many of them can be predicted hours ahead of time, a warning system seems to be the best method of alleviating the hazard.

INVESTIGATION

Research on tsunami hazards is continuing on virtually all levels of government. UNESCO's International Oceanographic Commission (IOC) has established an International Tsunami Information Center in Honolulu, to promote further research and exchange of information concerning tsunamis. The National Ocean Survey (NOS) and U.S. Coast and Geodectic Survey (USCGS) of the National Oceanic and Atmospheric Administration (NOAA) are the primary investigators of tsunamis in the U.S. The U.S. Geologic Survey (USGS) is also assisting in the basic research of processes involved in the generation of tsunamis. The California Division of Mines and Geology is investigating the extent of hazard to California. The Division will generally investigate the threat to Ventura County as part of the special geological investigation they will undertake in Ventura during the latter part of 1974.

WARNING

Warnings of impending tsunamis are generated by the USCGS Seismic Sea Wave Warning System (SSWWS) and the Alaskan Regional Tsunami System. They issue both Seismic Sea Wave Advisories, when an earthquake of significant magnitude has occurred in an area susceptible to tsunami generation, and Seismic Sea Wave Warnings, when tide stations confirm the generation of a tsunami (See illustration 9.2).

These Advisories and Warnings are transmitted by NOAA Satellite to the California Office of Emergency Services (OES). These warnings are evaluated by the Warning Control Officer and Director of OES and if necessary a statewide warning is issued to the local Sheriff, along with the estimated time of arrival of the wave (See illustrations 9.2 & 9.3). Ultimately, the Sheriff has complete responsibility whether to alert the coastal areas. If it is decided that an evacuation is necessary, the Sheriff will call the Police Departments of Oxnard, Ventura and Port Hueneme, the Highway Patrol, Fire Department, and the Director of Disaster Services. After this is accomplished, appropriate jurisdictions and departments are alerted. It is the responsibility of each jurisdiction to decide whether or not their population will be alerted. Ultimately, the evacuation of the coastal areas (See Plate V) is voluntary on the part of the residents. The alerting agencies can only warn people of the hazard--they cannot force evacuation. However, they can control re-entry into a hazard area.

Unfortunately, neither the Seismic Sea Wave Warning System nor any other known means of monitoring can provide sufficient warning time to allow for evacuation of coastal areas should a tsunami be generated along one of the faults within the Santa Barbara Channel. The arrival time for such a wave at any point on the coast would only be a matter of minutes. The only warning prior to arrival of a possible tsunami would be the ground shaking experienced from the earthquake. Such shaking would be felt in advance of the tsunami arrival and, if heeded, could allow sufficient time for people to move to higher ground.

ALLEVIATION

The threat to human life can be nearly eliminated by an effective warning system when advance notice is available. The county territory as well as the cities of Oxnard and Port Hueneme have an efficient warning system in effect which can alert the entire affected population, if enough warning time is available (refer to Warning section). Because advance notice may not always be possible (such as in the case of a tsunami originating in the channel), and because warning systems cannot alleviate the threat to property, various jurisdictions may wish to evaluate land uses as a means of insuring minimal loss of life and property. As indicated earlier, there is a small probability of the occurrence of a tsunami in Ventura County. Therefore, the most practical means of alleviation is an effective warning system. Whether or not land use controls are employed by the various jurisdictions depends upon its perception of the probability of the hazard occurring and the costs of restricting certain land uses.

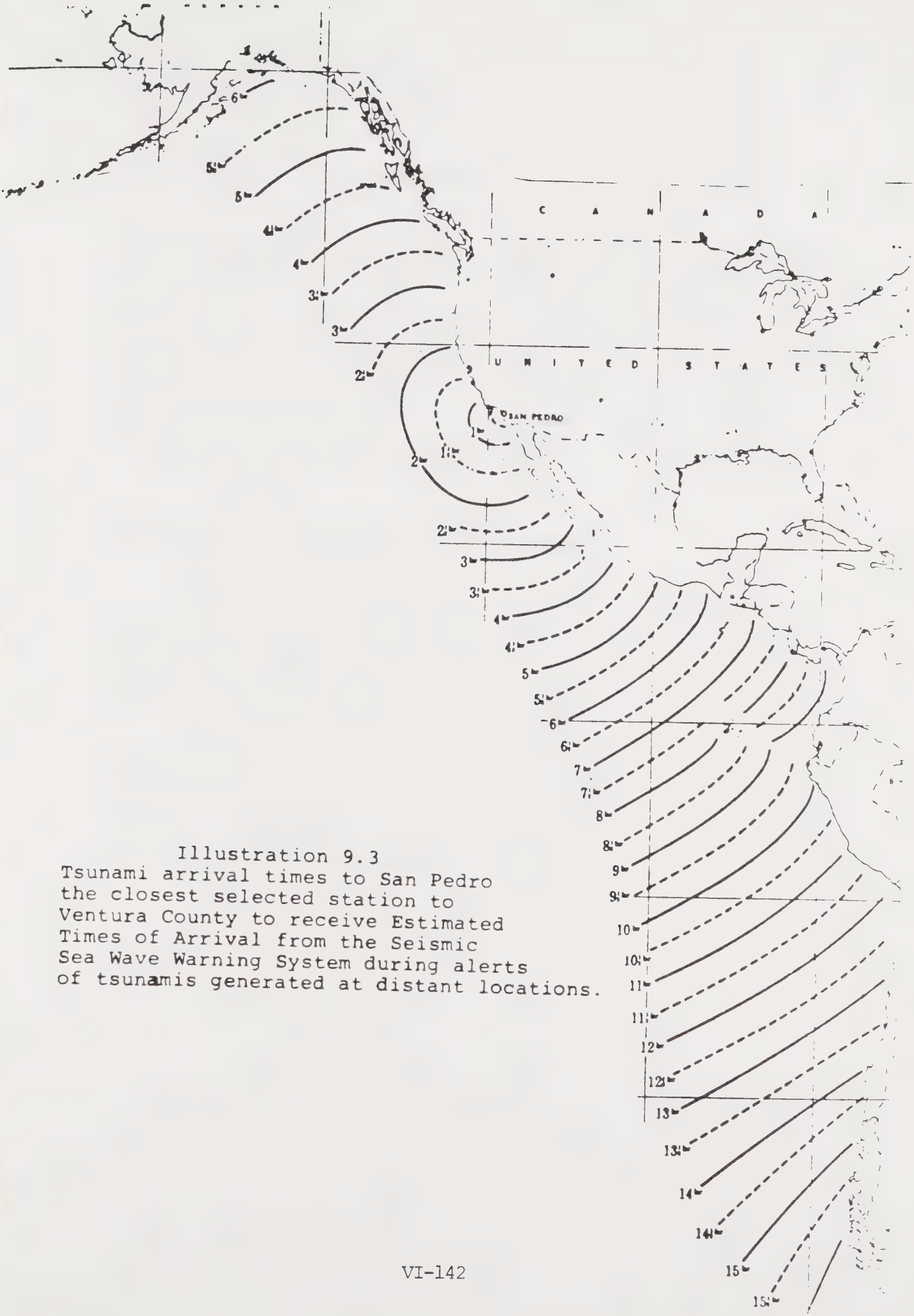


Illustration 9.3
Tsunami arrival times to San Pedro the closest selected station to Ventura County to receive Estimated Times of Arrival from the Seismic Sea Wave Warning System during alerts of tsunamis generated at distant locations.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

A hazard zone is present east of the Ventura River, south of Main Street and west of Palm Street. Another hazard zone includes the area east of Palm Street, the area south of the freeway to Sanjon Road, and all areas below the Pierpont Bluffs to the Santa Clara River flood plain. The area inland from Highway 101 and east of the Highway 33 freeway are fairly well protected from wave damage but could be damaged by a rise of sea level and the rapid draining back of the water. The hazard zone also extends two miles above the mouths of the Ventura and Santa Clara Rivers. (See Plate V).

LOCAL RESOURCES AFFECTED BY THE HAZARD

Part of the business district near the mission and the freeway could suffer some damage from a major tsunami. However, everything on the beach side of Highway 101 could suffer more damage from a major wave or series of waves. The Pierpont area below the bluffs was originally low tidal swamp and is highly susceptible to tsunamis.

Some of the more extensive property damage from a major tsunami could take place in the marina, where the wave could not only wash over the beach but would be transmitted by the harbor waters, giving a double wave effect. The harbor could be damaged in even a minor tsunami, due to rapid and extreme changes in sea level.

FINDINGS

PROBABILITY OF OCCURRENCE

A tsunami threat exists to the entire coastal area of the city as well as the lower reaches of both of the rivers. Based upon the historic record, tsunamis are rare occurrences but one could affect this area at any time. The last major wave hit the city in 1812 but minor tsunamis have been recorded as recently as 1964.

SEVERITY OF THE HAZARD

Historic records in this area (and throughout the world) reveal that there is a great variation in their severity, but that a major tsunami could cause damage within the designated hazard zone and possible loss of life if a general warning was not issued.

RESOURCES AFFECTED

The Ventura Police Department on Ventura Avenue and the Fire Station on Santa Clara Street are in the hazard zone, as are Pierpont School and both sewage treatment plants. In a major tsunami the Holiday Inn, parking structure and Fairgrounds could be damaged. The San Buenaventura State Park and Hobo Jungle areas could be disrupted and be flooded in places, and the railroad and both highway bridges could be damaged.

NATURE OF INFORMATION

The validity of conclusions arrived at in this study of tsunamis is a function of the invormation from which they were derived. It should be noted therefore that while local data is limited, it does provide a basis for making general indications of the areas that would be affected by a major tsunami and that damage could occur.

OTHER FINDINGS

Since tsunamis themselves cannot be eliminated, the alternative means of reducing the hazard would be through the protection of people and property. Unless a tsunami originated from within the channel, there would generally be adequate time to warn people and thus prevent any loss of life. While warning systems can alleviate the loss of life, they can not prevent property losses. Land use controls within the hazard zone are a method of reducing the possibility of damage to property, or loss of life when there is not time for general warning. The entity making

the determination of the implementation of land use controls must take into consideration the infrequency of recent occurrences, the lack of detailed information from the historic record, and the appropriateness of the controls.

SEISMIC
SAFETY

SEICHE

The long light shakes across the lakes,
and the wild cataract leaps in glory.

Tennyson

GENERAL DISCUSSION

GENERAL DESCRIPTION

A seiche (pronounced sāsh) is a wave or series of waves or oscillators, set up in an enclosed or partially enclosed body of water by wind, earthquake or landslide. In a large body of water, wind can set up an oscillation that will send waves above the normal water line. These oscillations can be visualized by imagining a pan of water that is gradually tilted until waves start to slosh out. This type of seiche usually occurs only when the body of water is located in an unusual position in relation to local wind patterns.

The most common seiches are set up in lakes and bays, either directly or indirectly by earthquakes. The shaking of an earthquake can set up large and destructive oscillations that can send waves tens of feet above normal lake level. In harbors and bays, these waves can destroy harbor and shore facilities. Indirectly, tsunamis, by causing a rapid change in sea level or more commonly by the wave itself, can set up smaller internal oscillations in bays and harbors. These seiches are very similar to tsunamis, but the waves are smaller and of lower energy. Fault displacement under a reservoir can either displace a quantity of water or tilt the lake bed suddenly, producing waves by either effect. Earthquakes can also trigger landslides and these, whether triggered seismically or in some other manner can be by far the most destructive type of seiche (see Landslide/Mudslide Hazard). A landslide into an enclosed body of water can produce massive waves, especially on the shore opposite the slide.

Although it is possible to meausre the slow ground surface movement that sometimes precedes a landslide, in general, methods for the detection of landslides and other seiche-producing agents are still under study.

GENERAL EFFECTS OF THE HAZARD

PRIMARY THREAT

The primary threat from a seiche is to structures and facilities in or very near a lake, harbor or bay. Boats and their wharfage can be heavily damaged by seiches, and buildings and campgrounds can be inundated. Only in the case of an extremely severe seiche, a rather rare occurence, would loss of life be likely from the seiche itself. This is not the case, however, with the secondary effects.

SECONDARY THREAT

The secondary effects of a seiche can often produce more damage than the seiche itself. Large seiches can overtop the dams of man-made lakes and reservoirs, causing flooding in the areas downstream. This overtopping can also wash out earth-fill dams, causing their complete collapse.

The extent of most seiches is small, usually no more than ten to twenty feet above water level, and the duration is short, usually only a few minutes. However, a landslide can displace a wave that could travel hundreds of feet up the opposite shore of a body of water. Also, tsunami-caused seiches can last for many hours due to the possible rejuvenation of the seiche by each passing tsunami crest; however, each seiche would last only a few minutes and be of decreasing severity.

It appears that the actual threat that is posed by seiches is small, and it is probably the most remote of the hazards studied, although it may not be the least severe.

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

The hazard exists in all the lakes in the county, the two marinas and the harbor. The lakes that are impounded by earth-fill dams could have the greatest hazard potential. These lakes are Lake Bard (Wood Ranch Reservoir), Lake Piru and Lake Casitas. The Santa Clara River Valley could also be affected should a seiche-caused dam failure occur on Castaic Reservoir or Pyramid Reservoir. (See Plate V)

HISTORY OF THE HAZARD

No recorded seiche has ever occurred in Ventura County, but the damage to the marinas from a seiche could possibly be similar to that caused by the tsunami of 1964 (see Tsunami Hazard).

In Italy, in 1963, a landslide into Vaiont Reservoir caused a seiche that traveled up 800 feet on the opposite bank of the lake and swept over both abutments of the dam (the world's highest thin arch concrete dam) to a height of 328 feet. The water completely destroyed the town of Longarone below the dam, with a loss of over 2,000 lives. After all this, the dam itself was still standing.

DEFINITION OF THE HAZARD ZONE

The hazard zone surrounds all of the existing reservoirs and lakes, the harbor and the two marinas, up to an elevation of 10 feet above the water level. The ten foot figure is an estimate due to lack of information about the hazard.

NATURE OF INFORMATION

There is very little information available on seiches. There is no historic record of seiches occuring in Ventura County. Due to the indefinite nature of the triggering mechanisms, it seems doubtful that enough information will ever be known for general prediction of the hazard for planning purposes.

GENERAL MANAGEMENT RESPONSIBILITY

There is no way to alleviate the effects of possible seiches except by prohibiting construction within the hazard area. The State Division of Mines and Geology will in a general way, examine the hazard further within the next year.

RESOURCES AFFECTED BY THE HAZARD

The boat ramps and the campgrounds at Lake Casitas and Lake Piru are in the hazard area. Some of the homes at Lake Sherwood could be inundated during a seiche. The homes, boat docks and boats at the two marinas and at Westlake could also be affected, as could the wharfage and facilities at the Port of Hueneme. In the case of a seiche-caused dam failure, all the areas below that dam could be affected.

FINDINGS

A hazard from seiches does exist in the County, but the threat is considered remote. Only facilities in, or very near, enclosed bodies of water could be immediately affected. The over-topping of dams by seiches, however, could cause significant adverse effects down stream.

SEISMIC
SAFETY

SUBSIDENCE

Every valley shall be lifted up
and every mountain and hill
shall be made low, the uneven
ground shall become level and the
rough place a plain.

Isaiah, Chapter 40
Verse 4

GENERAL DISCUSSION

GENERAL DESCRIPTION

Subsidence, or the sinking of the land surface, is a worldwide problem. In Japan, nearly three million people in Tokyo and Osaka now live in areas below the high tide level. (California Geology, p. 149). Mexico City has subsided twenty five feet. (Geology, Seismicity and Environmental Impact, 1973). Numerous other examples exist which can be related to human activities.

In California, four types of subsidence caused by human activity, have been identified (in addition to those forms of the hazard which occur naturally). Named according to the action which causes the subsidence, these four are: Groundwater Withdrawal Subsidence, Oil or Gas Withdrawal Subsidence, Hydrocompaction Subsidence and Peat Oxidation Subsidence. Of all of these types, Groundwater Withdrawal Subsidence, which generally occurs in valley areas underlain by alluvium, is the most extensive and the impacts most costly. (Urban Geology, p. 43).

Basically, the process by which this first and most important type of subsidence occurs involves the extraction of a large quantity of water from an unconsolidated artesian aquifer. As this water is removed from the aquifer, the total weight of the overburden which the water used to help to support, is placed on the alluvial structure. Where this is unconsolidated, it can be compressed.

If fine-grained silts and clays make up portions of the aquifer, the additional load can squeeze the water out of these layers and into the coarser grained portions of the aquifer. All of this compaction produces a net loss in volume and hence a depression in the land surface. A very similar sequence of events leads to subsidence with oil and gas withdrawals (California Geology, p. 148).

Current studies of this problem in the state, focus on the determination of six factors. These are: degrees of groundwater confinement, thickness of aquifer systems, individual and total thickness of fine-grained beds, compressibility of the fine-grained layers, probable future depth of wells, and probable future decline in groundwater levels. All of these have a direct bearing on the potential occurrence and severity of withdrawal subsidence but the primary causes are substantial or initial (first-time) reductions in the water level of a valley fill alluvium. The two other forms of subsidence, peat oxidation and hydrocompaction, are rather localized and no evidence exists which indicates their occurrence in Ventura County (Urban Geology, p. 47).

Though the focus of this discussion has been on that subsidence which is caused by human activities, it is important to understand that subsidence can and does occur as a natural process. Surface deformation can be the result of the natural compaction of loosely consolidated alluvium or tectonics. Subsidence has been traced to the settling of geologically new sediments and to downwarping which accompanies crustal folding.

Subsidence can also be caused by several kinds of natural processes. Perhaps the most hazardous for Ventura County is that which might be caused by seismic shaking in the area of the Oxnard Plain. That area is known to be subsiding, thus exhibiting an intrinsic instability. The addition of strong ground motion from an earthquake could result in the liquefaction of fine-grained materials. This would cause a loss of ground support and the land surface could settle (Seismic Hazards, 1974). Unlike other forms of subsidence, this one could occur in a short period of time.

In terms of controlling subsidence, it is important to recognize that combinations of the above types may cause the change in level in a specific area. Before any steps in controlling subsidence can be attempted, a comprehensive investigation into what the cause or causes are, will be necessary. If human activity, such as extraction of fluids, is determined to be the key then regulatory action could halt the subsidence. However, if natural processes are responsible, control is much less easily exercised assuming it is even possible.

PHYSICAL PROPERTIES

The surface deformation resulting from oil extraction has been described as "...differential subsidence of lands centering on the fields, inwardly directed horizontal displacement and faulting." (Urban Geology, p. 46). The first of these, differential subsidence, is both the most common and the most widespread surface manifestation of subsidence. A large bowl shape, extending beyond the production area is commonly identifiable.

Oil extraction has resulted in the greatest subsidence on record (elsewhere, not in Ventura County). In the Wilmington Oil Field, near Long Beach, a drop of 29 feet was recorded in the period 1928 to 1972. In 1966, a program of repressurization in conjunction with the secondary recovery of il commensed which successfully halted the subsidence by 1972 (Urban Geology, p. 46).

A subsidence of similar magnitude occured in the San Joaquin Valley. This was recorded in 1969. A key difference between this case and the previous one, however,

was that here the cause has been determined to be the extraction of groundwater (Urban Geology, p. 46).

MEASUREMENT AND DETECTION

Forecasting the extent, rate and magnitude of subsidence is difficult. A series of benchmarks must be established to measure any vertical change. This will, over time, provide information regarding the location of subsiding land and show that area which is subsiding fastest. From this point, core samples of the area would have to be compaction tested to determine probable future consolidation. Combining this information with fluid withdrawal rates (if any extraction is occuring) can make prediction about future subsidence possible. From this point, the desirability of either planning for the subsidence in terms of regulated land use or counter-measures to halt the subsidence could be assessed.

A successful attempt to reduce the amount of subsidence has been made in the Santa Clara Valley, south of San Francisco starting in 1964. While still sinking, a reduction in the rate of subsidence by about 95% was achieved when large amounts of imported surface water allowed a reduction in the tapping of the valley's underground sources. The water level subsequently rose about 60 feet. In a study of this process, a research hydrologist has concluded that a complete halt can be put to Santa Clara's subsidence and possibly a reversal can be achieved, if the water table is raised sufficiently. (California Geology, p. 148).

Another source lists the possible means by which withdrawal caused subsidence can be curbed. Prefacing these methods with the statement that any attempt to stop subsidence is a major undertaking, this article states that the technique employed depends on the structure of the aquifer. In areas of unconfined aquifers, reduced withdrawal or increased recharge through water-spreading is necessary. Confined aquifers or oil bearing zones must be repressured by injection wells in order to stop subsidence. Mainly, due to the high cost involved, this method has been used in only one instance in the area of the Wilmington Oilfield. (Engineering Geology, p. 278).

GENERAL EFFECTS OF THE HAZARD

As with the destruction which is caused by expansive soils, that caused by subsidence is generally not of an immediate or violent nature. Except when prompted by seismic shaking, the compaction of alluvium and settling of the land surface is a process which consumes years.

Undoubtedly, since most subsidence damage occurs very slowly over a long period of time, it is assigned an unwarranted lack of attention. Much money is lost through either premature abandonment or repair costs. It now appears that at least in the case of withdrawal subsidence, proper management could prevent continuing damage.

PRIMARY EFFECTS

Subsidence which results from groundwater withdrawal can be responsible for numerous structural effects. Most seriously affected are long surface infrastructure facilities which are sensitive to slight changes in gradient. Within this group, wells, canals, sewers and drains especially have experienced functioning and structural failure. In a 1970 projection, losses to the year 2000 were estimated to reach about $26,000,000 for subsidence in California. Water withdrawal subsidence accounts for a large part of this. (Urban Geology, p. 11).

Subsidence caused by oil and gas extraction is similar in effect to that caused by water extraction. In one example, oil extraction was responsible for $100,000,000 in damages to various facilities and structures in the Long Beach area. (Urban Geology, p. 48).

Hydrocompaction can also create subsidence conditions as can peat oxidation, the latter is a particular threat in terms of increasing the potential for flooding. (Urban Geology, p. 48). Both of these, however, are common only in areas outside of Ventura County so they are of minor or no consequence to us.

SECONDARY EFFECTS

Inundation must be viewed as a potentially serious secondary effect of subsidence in Ventura County. Both the ocean and the Santa Clara River could flood into depressed areas of the Oxnard Plain. If a naturally low area is further depressed by the action of subsidence, it is reasonable to assume that the damage will be more severe than if the subsidence had not occurred. In the case of the coastal portion of the Oxnard Plain, beach erosion could extend further inland due to the additional loss of elevation caused by subsidence.

The Santa Clara River poses another problem. It is building up sediments within its present course while no longer adding deposits to the remainder of the Oxnard Plain. If the old deposition sites have had an opportunity to consolidate and establish a gradient difference between themselves and the present river course, a flood could change the river course and thus inundate the lower

land. Extraction of oil and/or water could increase the potential for such an occurrence and increase the area affected if they added to the subsidence.

Numerous other secondary effects can be identified. Most of these are related to the disruption of services provided by various structures which might be damaged by subsidence. Those facilities most commonly affected are canals, wells, pipelines, drains, and related facilities.

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

A very significant area in Ventura County, the Oxnard Plain, is experiencing subsidence. This area has been monitored by the U.S. Coast and Geodetic Survey since the 1930's. Up to 1965, one large area was subject to subsidence of between 0.04 and 0.05 feet per year. (Coastal Geology, p. 5). A single point located at Hueneme Road and Highway 1 has dropped 1-1/2 feet in just twenty-one years. Records to 1968 show a dozen bench marks that have settled a foot in a fifteen to twenty year period.

Hazards Plate VI of the Seismic and Safety Elements shows three subsidence zones. These zones are: probable subsidence that is on the order of 0.05 feet/year; probable subsidence of less than 0.05 feet/year; and the estimated limit of areas presently affected by subsidence. The first and most severe of these categories reaches roughly from Pierpont in the north to the Mugu Lagoon in the south and extends east on the Oxnard Plain to the junction of Highways 1 and 101 (Public Works). The last two categories extend inland from the more severe subsidence on the Oxnard Plain ultimately up through the Santa Clara River Valley to a point just east of Piru.

NATURE OF INFORMATION

Definite and detailed establishment of the rate and/or cause of subsidence in Ventura County has not been made. Public Works information indicates four possible causes: natural consolidation of alluvium, tectonic deformation, water extraction, and/or oil extraction. The specific cause or causes of Ventura County's subsidence problem probably could be determined, but only after immense effort and cost. For example, such an analysis would necessitate detailed investigations over a 5 to 10 year period into such areas as fluid withdrawal - both amounts extracted and types of formation withdrawn from.

If, as a result of this analysis, it was found that human activities were responsible for the subsidence then measures could be taken to halt or even reverse the process.

Available evidence as to cause of subsidence in Ventura County is quite scanty; indeed, information is available only for groundwater. Current data suggests that groundwater has been extracted from the aquifers underlying the Oxnard Plain at a rate that exceeds the rate of replenishment. Overdraft of water for agricultural, domestic and industrial uses has increased from about 32,000 acre feet per year in 1959 to about 44,000 acre feet per year. The water table has dropped as much as 55 feet below sea level as a result of this continuous overdraft. (Water Quality Control Plan, p. 27). Despite the availability of groundwater data, the present lack of information on other causes precludes any meaningful assessment of actual cause of subsidence.

As part of a regional effort extending from Santa Barbara to Los Angeles, some 500 to 600 benchmarks are being monitored in Ventura County by a federal agency to determine the extent of subsidence. Readings were taken in 1970 and a second series, five years later, should result in a report on areas of significant change. While not aimed at identifying causes, this report coming out next year, will at least establish locations and amounts of subsidence (Powell).

The County Surveyor is participating in this program which is being conducted by the National Ocean Survey, formerly the U.S. Coast and Geodetic Survey. Preliminary data, though in no way conclusive or absolute, does indicate that subsidence is occurring on the Oxnard Plain. Secure figures on rate, amount and extent of the subsidence here and elsewhere, will have to wait until the publication of the 5-year report (Powell). Areas requiring more detailed studies could be determined based upon the information in the report.

Positive determinations regarding the exact limits and rates of subsidence would require special surveys for this particular purpose. Such a survey would require a grid of many bench marks (monuments) of special construction and a periodic monitoring program extending over a period of several years.

GENERAL MANAGEMENT RESPONSIBILITY

Studies of water withdrawal subsidence have been conducted by the U.S. Geologic Survey and the California Department of Water Resources. Adverse effects are moderated to some degree by State and Federal projects

which provide surface water to areas with dropping groundwater tables. In areas where such assistance is not available or where a project does not make up all of the difference, then control of the problem is responsibility of local water conservation districts. This control is both loose and variable (Urban Geology, p. 48).

Subsidence resulting from oil and gas extraction has been investigated by the U.S. Geologic Survey, California Department of Water Resources and the California Division of Oil and Gas. The Division of Oil and Gas has a monitoring and regulating program which the "Urban Geology" report ranks as equal to the task. Coordination with local agencies and expansion of the program to areas of need are the only changes the State has identified as necessary for proper control of this hazard. (Urban Geology, p. 11).

As stated previously, several agencies are involved in the control of this hazard in Ventura County. The first step in this direction, the inventory and investigation of subsidence, is being taken. When this effort is completed, a better understanding of the nature of the problem should afford the concerned agencies an opportunity to determine the need for special monitoring and, ultimately, to control and/or plan for it.

LOCAL DISCUSSION

Thus far, the only information available on subsidence in Ventura County has to do with its approximate rate and extent. No reports are available on causes or damage. Without this information, and because of the regional nature of this hazard, any statement about the danger which subsidence poses to the cities or specific locations within cities cannot be made other than those made about the County in general. Therefore, no local hazard sections are included in this report.

FINDINGS

PROBABILITY OF OCCURRENCE

A subsidence problem does exist; mainly in the Oxnard Plain area of the county. It is probable that it will continue, possibly at an increasing rate. This could occur if extraction of fluids from this area is increased.

SEVERITY OF THE HAZARD

Measurements to date indicate that a maximum drop on the order of 1.5 feet has occurred over the past 20 years in some areas of the Oxnard Plain. Further surveying is continuing and should better define the magnitude of this problem. Records from other areas of the country and the world indicate many areas experience much more severe subsidence problems than is the case in our county.

RESOURCES AFFECTED

Property damage due to subsidence can and does occur over a long period of time. Loss of life would probably occur only as a secondary effect of subsidence, say as the result of flooding. Drainage courses, wells and utility lines are potentially the most vulnerable to damage.

NATURE OF INFORMATION

A possibility exists that some potential subsidence damage can be controlled. Such controls, however, must await the definite determination of the cause or causes of subsidence, as well as the rate of this subsidence. Until this information is fully developed, little can be done to plan for or respond to this hazard. The current Water Resources Management Study being conducted by the State Department of Water Resources in cooperation with the County of Ventura and due to be completed in December, 1975, will provide additional information in regard to groundwater management.

SEISMIC
SAFETY

EXPANSIVE SOILS

GENERAL DISCUSSION

GENERAL DESCRIPTION

Expansive soils (which are identical to soils referred to elsewhere as having a shrink-swell potential) are those which are generally clayey, expand or swell when wetted and contract or shrink when dried. Wetting can occur naturally in a number of ways, i.e. absorbtion from the air, groundwater fluctuations, as well as from other sources, i.e., lawn watering, broken water or sewer lines.

In the 1960's, expansive soils caused severe damage to many housing developments. While significant construction deficiences were noted, more conservative engineering design provisions and regulations were initiated which effectively eliminated the hazard to future construction. Subsequent engineering studies have resulted in tests and design procedures which provide safe and economical design for expansive soils. Local building ordinances have incorporated these concepts in recent years.

The only area relating to expansive soils, which must continue to receive special attention, is downslope soil creep in hillside areas. As an expansive soil expands and contracts it tends to move downslope in response to gravity. Recognition of this condition by all parties should not be overlooked. This condition may require flatter slopes, soil removal and special landscaping and irrigation treatment.

The tremendous force exerted by the expansion of soils is generally not understood by the average person and quite often results in requests for waiver of the soil test as "unnecessary." Such a complacent attitude is unjustified. In no way should the ability to provide designs for expansive soils give one the feeling that expansive soils are no longer a factor to be considered.

GENERAL EFFECTS

Fully 20% of this nation's land area will be affected by expansive soil movements during the period of the average person's lifetime. Typically, expansive soils are located in areas of moderate slope which are coincidentally the areas generally most attractive for intense, urban type uses. The movement of expansive soil may be slow, progressing over a period of years. Commonly, this movement is associated with seasonal or even longer wet/dry cycles. (Civil Engineering, 1973, p. 49).

PRIMARY EFFECTS

These soil movements can cause structural damage to houses, pavement and utilities in two ways. First, the expansion of the soil can cause it to heave and thus place direct pressure on a structure. Alternately, soil expansion can lead to the loss of support under part of a structure. This can occur during swell conditions if the saturated soil shifts due to the weight of the structure, or in dry conditions if the soil shrinks and support is withdrawn.

Damage can range from the impaired functioning of doors and windows through plaster and foundation cracks to total destruction in extreme cases. Often water from a leaking sewer line is responsible for causing the soil expansion which damages a home. Annually, some 250,000 homes are built on expansive soils in the United States and 10% of these will experience "significant damage." Nationally, at least $2.3 billion is lost annually due to damage to houses, buildings, roads and pipelines. Records exist of expansive soils causing damage to highways, buildings, reservoirs, swimming pools, canals and utilities of all types. (Civil Engineering, 1973, p. 49).

SECONDARY EFFECTS

The main secondary effect of expansive soils to structures not designed against the condition is monetary loss.

GENERAL INVENTORY

LOCATION

Three expansive soil zones have been mapped; and they appear on Hazards Plate VI. Derived from the Soil Conservation Service's 1970 Soil Survey, this map designates high, moderate and low expansive zones. This is a generalized version of individual soils maps. It generally indicates those areas where expansive soils are present. (See Soil Survey in Ventura Area, 1970).

A more specific map was prepared for each entity, and the degree of expansiveness may not conform precisely to Plate VI even though both utilize identical categories of expansive soils. The reason for this is that the local maps were taken from the non-generalized maps developed by the Soil Conservation Service and thus display a greater level of detail.

While the general and specific maps are quite useful for locating large areas of potential hazard, it must be stated that they cannot be used in lieu of site inspection when construction is considered. Experience in the Building and Safety Department indicates that a soils test at the specific site is necessary because this hazard is so localized in nature.

HISTORY

In the early 1960's numerous homes were lost and many more were severely damaged in the Shadow Oaks Tract. Adjacent to the City of Thousand Oaks, this area experienced soil expansion which cracked many 2-inch thick slabs. Other areas of the county have also experienced problems due to soil expansion, specifically the Camarillo Heights Area. However, here the damage has not been as great because many lessons were learned in the Shadow Oaks case.

As the damage started to appear in the new homes of this tract, many of them were vacated. Still others remained occupied but some people stopped making their payments. Many houses were rented, a transient group of people occupied these and the neighborhood generally declined.

In time, repairs saved some homes while others were replaced using more cautious construction techniques. The slabs were increased in thickness up to 9 inches. In time, this requirement was refined and relaxed in cases where soils tests revealed minimal shrink-swell potential. The Shadow Oaks case was primarily responsible for the establishment of more stringent building code requirements which have effectively eliminated the expansive soils problem in Ventura County.

NATURE OF INFORMATION

General information concerning the shrink-swell potential of the county's soils has been provided in the Soils Survey by the Soil Conservation Service. This information is useful but its limits must be recognized.

Expansive soil is so localized in occurrence that it is necessary to test each site and gauge construction to the specific soil conditions. A range of design requirements and construction techniques must be met according to the expansive quality of the soil. It appears that no further information is needed about the general occurrence of expansive soil in the county. However, investigation is needed for each site and this is being accomplished as specific proposals for development are made.

It is generally accepted that the expertise exists to both identify the problem and provide solutions. Soils engineers can locate problem areas and foundation engineers can design counter measures. The ability to control and minimize damage from expansive soils is such that the State in its Urban Geology Master Plan sees no need to either institute new or change existing programs. Merely implementing existing programs to their full extent is the recommendation of this State report.

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATION

For the county in general, the United States Department of Agriculture and the University of California Agricultural Extension have investigated the occurrence of expansive soils in their Soil Survey. This investigation shows a scattering of such soils and thus indicates the necessity for individual investigations of local soil conditions. Building regulations in unincorporated areas require appropriate soils tests, but some city requirements are not always so stringent on this point.

REGULATION

Numerous agencies, including the City of San Buenaventura, have established standards to eliminate the potential for structural damage due to expansive soils. Both HUD and FHA have codes to be followed if expansive soils are present. The United States Department of Agriculture in conjunction with the University of California Agricultural Extension Station have recommendations based on their Soil Survey of Ventura County. In addition, the State Subdivision Map Act and the Uniform Building Code exert some control in areas where this hazard exists.

Within the City of San Buenaventura a soils engineering report is submitted for all new construction except for those in sandy beach areas. The report classifies the soils expansiveness and indicates its location and depth.

ALLEVIATION

2) Page XII-5 ALLEVIATION

Amend section to read:

Steps would have to be taken in the grading and construction phases of a site in order to assure protection against the hazards of expansive soils. Corrective measures include various foundation construction techniques and appropriate drainage procedures. The degree of expansiveness, as revealed in the expansion test, dictates the type of foundation design. When the expansiveness of a soil exceeds a set limit, a special engineering design is required for that site and building. Responsibility for enforcement of City ordinances for fine grading and suitability for construction rests with the Division of Building and Safety.

LOCAL DISCUSSION

LOCAL INVENTORY OF THE HAZARD

There are several zones of highly expansive soils in the foothills of Ventura. Two other significant areas of high shrink-swell potential are located near the intersections of Harbor and Olivas Park Drive and Victoria Avenue and Olivas Park Drive. The majority of the remaining City territory is rated as being a zone of moderately expansive soil.

LOCAL RESOURCES AFFECTED BY THE HAZARD

Past problems involving residential development have centered in foothill areas. Since the adoption of codes aimed at alleviating these problems, very few incidents have been recorded. The past problems have mainly related to the cracking and buckling of the foundations of homes. The City has indicated that repairs were possible in all cases and no homes were lost.

LOCAL MANAGEMENT RESPONSIBILITY

3) Page XII- 6 LOCAL MANAGEMENT RESPONSIBILITY

Amend section to read:

The City of San Buenaventura Building and Safety Division is in charge of regulating foundation design to withstand the stresses exerted by expansive soil. Code restrictions have been enforced since 1967. Testing of soils on individual lots for expansive characteristics is also a part of the Code.

FINDINGS

4) Page XII-7 FINDINGS

Amend portion of section to read:

After problems developed, the City moved to protect against future occurrences. Investigation and prospective measures employed appear to have been both comprehensive and effective.

SEISMIC
SAFETY

DAM INUNDATION

Since potential dam failures affect the safety of many communities, inundation maps for all major dams are being prepared by the dam operators pursuant to section 8589.5 of the Government Code of California. These maps will become a mandatory consideration in the Safety and Seismic Safety Elements when the maps have been approved by the State Office of Emergency Services.

Preliminary maps are available for some of the dams affecting the county. Lake Casitas, the largest dam in the county is controlled by the Federal Bureau of Reclamation and they cannot be compelled to do the inundation maps. However, they have indicated that they will prepare one next year. Castaic and Pyramid Dams, in Los Angeles County but upstream in the Santa Clara River drainage system, are operated by the California Department of Water Resources as part of the California Water Projects. These maps are in preparation but the State refuses to release the preliminary maps.

The maps for the three largest dams that effect the county are not available and all the rest are only preliminary and subject to change. Since they are not yet required and the information is preliminary, it was decided to delay the inclusion of this hazard section until the final maps are received, probably sometime in 1975.

This hazard has more relevance to Ventura County than almost any other area of the State because of the 1928 failure of the St. Francis Dam which caused massive destruction in the Santa Clara River Valley. This dam failure was the second worst disaster, in terms of the number of lives lost, in California history; second only to the 1906 San Francisco earthquake. This section will be added to the Seismic and Safety Element as soon as the final maps are available. The State does not require this section as part of the element until the final maps are received.

SEISMIC
SAFETY

FIRE HAZARD

SEISMIC
SAFETY

STRUCTURAL DEFICIENCIES

If a builder build a house
for a man and do not make
its construction fair and the
house which he has built
collapses and causes the
death of the owner of the
house, that builder shall be
put to death.

Code of Hammurabi,
2130-2088 B.C.

Illustration 15.1

Ruins of San Francisco City Hall, 1906. Cornerstone laid February 22, 1872. Dedication July 1, 1899.

Source: Seismic Study, West Wing California State Capital, June, 1972.

GENERAL DISCUSSION

GENERAL DESCRIPTION

Simply stated, the greatest single cause of life-loss and property damage in an earthquake is the effect the shock has upon man-made structures, i.e. shattered glass, falling bricks and other materials, building collapses, etc. A major cause of such damage has been the design and construction of structures which have been unable to resist the strong lateral forces created by earthquakes. At this time, however, there is sufficient knowledge to construct structures which can withstand fairly high lateral forces. Realizing this, it appears that seismic safety can be acheived through careful development and construction practices.

This section on structural deficiencies focuses on 1) the evaluation and identification of hazardous structural deficiencies and 2) the development of land use and construction standards to minimize any hazard created. The subject will be treated generally since local inventories of the hazard are not available and such research is beyond the capability of this report.

In discussing structural deficiencies an understanding of the types of structures and their response to earthquakes is essential. Illustrations 15.2 and 15.3 are a summary of building types and their response to seismic forces and provides an initial indication of where seismic hazards may exist. Briefly, unreinforced masonry, brick and concrete buildings are very susceptible to damage in earthquakes. Parapets, chimneys and other appendages are also hazardous, when not properly attached or reinforced. Another indication of a hazard is the year when a structure was built, since seismic safety standards in buildings were not required or generally used until 1933, after the Long Beach earthquake. Upgradings of the building code have occured periodically since then.

The problem of seismic structural safety is two-fold, involving 1) the prevention of the hazard, and 2) the abatement of hazards already existing in buildings. This requires responsibility in 1) the formulation of engineering standards and the enforcement of the standards and 2) the identification and abatement of the hazard in existing structures.

Obviously, the potential severity of the earthquake hazard increases as density of settlement increases, as unsafe structures continue to be used, and as new seismically inadequate structures are built. A graphic illustration of the possible effects of structural deficiencies

Illustration 15.2 Seismic Responses of Building Types
Source: Tri-Cities Safety Study, Pg. 74-75

TYPES OF BUILDINGS AND PAST PERFORMANCE

Steel Frame Buildings During the 1971 San Fernando earthquake, no significant structural damage was experienced by any completed earthquake resistive steel-frame buildings in the Los Angeles area. Many did suffer other kinds of damage resulting in a maximum loss, in one case, of $200,000, or about 1% of the value of the building.

Older steel frame non-earthquake resistive buildings performed much more poorly. While none sustained structural damage, many experienced non-structural losses amounting to over 5% of assessed market value and in one case over 25% of assessed market value.

Concrete Frame Buildings The experience of the 1971 San Fernando quake showed that earthquake-resistive concrete frame buildings performed generally as well as steel frame buildings when located 15 to 25 miles from the epicenter. Of the high-rise buildings which suffered the highest amounts of damage, however, many more were of reinforced concrete than steel.

Unreinforced Concrete Block and Hollow Clay Tile Buildings Older buildings of non-reinforced concrete block laid in sand-lime mortar are extremely vulnerable to earthquake damage. Many of this kind of building suffered slight and moderate damage in San Fernando, and a few experienced severe damage.

Brick Buildings and Reinforced Brick Buildings Brick and reinforced brick buildings also do very poorly in earthquakes. In the San Fernando quake, pre-1940 brick structures suffered much more severe and moderate damage than any other type.

Reinforced Masonry Buildings Most of these buildings were built under modern building codes and can be considered generally safe. Their weakness in San Fernando was joint failure, leading occasionally to detachment of roof from walls.

Steel and Sheet Metal Buildings Metal-sided buildings, usually used for storage and factories, perform very well in earthquakes because of their light weight and flexibility.

Wood-Frame Buildings Wood-frame structures have the best earthquake performance record of all older and smaller buildings. Their light mass accounts for much of their low susceptibility to damage.

BUILDING COMPONENTS AND PAST PERFORMANCE

Parapets and Chimneys Probably the greatest loss of life from earthquakes has resulted from the failure of unreinforced unit masonry, particularly unreinforced brick parapets on commercial buildings. Persons on the streets or inside buildings are often injured by such falling masonry. Chimneys can also be a great hazard in houses and small apartments.

Signs and Appendages Signs, marquees, canopies and general ornamentation extending out from buildings pose a great potential hazard in earthquakes if not adequately anchored to the building.

Facades Two kinds of hazards can be caused by building facades. Masonry veneer facades inadequately anchored, can be shaken loose by an earthquake, causing danger similar to parapets. On the other hand, open glass facades as on stores, can cause amplified twisting to the building and shattering of glass on the sidewalk.

Ceilings and Hanging Items Plaster ceilings and ceiling tiles are often shaken loose during an earthquake, as are poorly-anchored hanging fixtures, resulting in human injury.

Building Contents Heavy furniture, appliances, bookcases, machinery, etc. often are throuwn about during earthquake shaking and can cause damage and injury.

Access Routes Stairwells and doorways are often blocked after earthquakes. Doors and elevators are often inoperative.

Illustration 15.3

HAZARD COMPARISON OF NON-EARTHQUAKE-RESISTIVE BUILDINGS

Note: This table is intended for buildings not containing earthquake bracing, and in general, is applicable to most older construction. Unfavorable foundation conditions and/or dangerous roof tanks can increase the earthquake hazard greatly.
SOURCE: Steinbrugge, Karl V., Earthquake Hazard in the San Francisco Bay Area.

Simplified Description of Structural Type	Relative Damageability (in order of increasing susceptibility to damage)
Small wood-frame structures, i.e., dwellings not over 3,000 sq. ft. and not over 3 stories.	1
Single or multistory steel-frame buildings with concrete exterior walls, concrete floors, and concrete roof. Moderate wall openings	1.5
Single or multistory reinforced-concrete buildings with concrete exterior walls, concrete floors, and concrete roof. Moderate wall openings.	2
Large area wood-frame buildings and other wood-frame buildings.	3 or 4
Single or multistory steel-frame buildings with unreinforced masonry exterior wall panels; concrete floors and concrete roof.	4
Single or multistory reinforced-concrete frame buildings with unreinforced masonry exterior wall panels, concrete floors and concrete roof.	5
Reinforced Concrete bearing walls with supported floors and roof of any materials (usually wood).	5
Buildings with unreinforced brick masonry having sand-lime mortar; and with supported floors and roof of any materials (usually wood)	7 up
Bearing walls of unreinforced adobe, unreinforced hollow concrete block, or unreinforced hollow clay tile	Collapse hazards in moderate shocks

took place in Agadir, Morocco. In 1960 an earthquake calculated at a Richter magnitude between 5.5 and 6.0 shook Agadir's 33,000 inhabitants. After it was over 12,000 persons had been killed and 12,000 were injured from structural failures. Reviewing the structures in Agadir:

> *The most prevalent construction material was older masonry which varied from stone (with mortar of mud and sand) to more modern construction of stone or clay tile with mortar ranging from weak mud and sand to good quality sand cement. None of the masonry was reinforced. The second most prevalent type of construction was usually a very poor quality reinforced concrete which had not been designed to resist earthquake forces.* (Department of Commerce, NOAA, 1972, Part B, pg. 9)

In magnitude this earthquake compares to the Point Mugu quake of February 21, 1973, which measured 5.7 on the Richter scale. This moderate shock caused minor damage in the Point Mugu-Oxnard area. One of the main differences being that our construction standards were much better than those in the Morocco experience.

A more relevant experience is the 1971 San Fernando earthquake. Calculated at a Richter magnitude of 6.6, it was a moderate shock near a highly developed area and has since been considered a test of the modern city's ability to undergo seismic shock. The number of deaths totaled 58 which were directly attributed to earthquake effects, a number thought to be low due to a combination of fortunate circumstances. From a Report of the Los Angeles County Earthquake Commission, it is worth repeating the following scenario which makes one aware of the possibilities of a catastrophe in our own area.

> *Had the earthquake centered twenty miles farther south close to the center of population in metropolitan Los Angeles, it would have done much more damage and caused the collapse of many more old buildings. Had it occurred three hours later, there would have been many more occupants in the buildings that did collapse. Had the freeways been crowded, the bridges that collapsed would have caused many more deaths and injuries, and other casualties would have resulted from automobile accidents caused by the sudden disruption of the thoroughfare. Had the earthquake occurred when more people were on downtown streets there would have been many more casualties from falling debris. Finally, the lower San Fernando Dam had only four feet of freeboard after its partial failure; had*

it failed completely - or even after emptying was well along an area inhabited by 80,000 people would have been inundated.

The 1971 earthquake pointed out major structural deficiencies in the ability of old and new buildings to undergo seismic stress. The San Fernando Veteran's Administration Hospital had a number of buildings built between 1925 and 1927 without earthquake resistence measures which were severly damaged. Forty-six persons died in the collapse of two such buildings constructed of reinforced concrete frame. The main Olive View Medical Center buildings, recently completed, were constructed of reinforced concrete under earthquake resistant standards. It suffered extensive damage including the collapse of the Psychiatric building, causing the deaths of three persons.

The cause of structural deficiencies may be any one or combination of factors. Construction practices, policies on land use, enforcement of building codes and rehabilitation programs have not always considered the consequences of seismic activity.

Building Codes are the basis for establishing criteria to meet seismic safety standards. The goal of seismic safety was aptly expressed by the structural Engineers Association in their publication, "Recommended Lateral Force Requirement and Commentary, 1963," when discussing the purpose of the seismically oriented building codes. The intent is to construct structures which will:

1. Resist minor earthquakes without damage.

2. Resist moderate earthquakes without structural damage, but with some non-structural damage.

3. Resist major earthquakes of the intensity of severity of the strongest experienced in California, without collapse, but with some structural as well as non-structural damage.

If one considers these intents as valid, then it is quite obvious that these standards have not been met in past earthquakes.

GENERAL EFFECTS OF THE HAZARD

PRIMARY EFFECTS

The primary effects of the hazard is the loss of life and property. During an earthquake, structures can be expected to undergo the forces of fault displacement of ground-shaking. If a structure is built over faults which rupture, it will inevitably be severly damaged. However,

the area affected is localized over the fault. On the other hand, ground-shaking effects normally extend over many square miles and structures can be built to resist such forces.

The amount of damage sustained by any particular structure is largely dependent on its condition and the intensity of the forces affecting it. "Ground motion is excited by the propagation of waves which emanate from the hypocenter (source) of an earthquake." (Department of Commerce, December, 1971, p. 31). Such waves generate a vibrational force whose accelerations determine the stress applied to a structure. Accelerations are measured by seismographs strategically located throughout the state. During the 1971 San Fernando earthquake, the largest motion ever recorded was located at the Paicoma Dam, the forces exceeded 1.25g and there was almost continuous accelerations ranging from 0.5g to 0.7g for 12 seconds. Previous thinking considered .5g to be a "practical maximum that could be transmitted by an earthquake." (Department of Commerce, December, 1971, p. 34).

With this type of acceleration, structures which have been reinforced to withstand seismic forces have proven to do much better than those not reinforced. This, of course, does not consider the effects on a structure of liquefaction, ground failure or subsidence which are considered in other sections.

The extent of damage covers all structures including buildings, utilities, gas, water and sewage lines, highway bridges and dams. In the 1971 San Fernando earthquake, it has been estimated that over $500 million worth of damage occurred and 58 deaths were directly attributed to the earthquake, nearly all from structural failures. "It was reported that approximately 850 homes, 65 apartment buildings and 574 commercial-industrial buildings were so damaged that they were vacated, some 4,800 homes, 265 apartment buildings and 1,125 commercial-industrial buildings had appreciable damage, and about 30,000 structures had lesser damage." (L.A. County, 1971). Generally, structures that suffered the most major damage were older masonry buildings not reinforced against lateral forces. This included the Veterans Administration Hospital Buildings that collapsed and killed 46 persons.

Not all modern structures withstood the seismic forces. Collapse of the first floor of the 2-story Psychiatric Building and severe damage to other buildings at the recently completed Olive View Medical Center is evidence that building to the minimum code specificiations without regard to the special design modifications is not enough. Other structural weaknesses appeared in connectors of roofs to masonry or tilt-up walls in commercial or industrial buildings, and inadequate reinforcements of some

concrete columns, leading to collapse of those buildings. (Department of Commerce, December, 1971, p. 369).

Another direct effect was the near collapse of the lower Van Norman Reservoir which could have inundated an area inhabited by 80,000 persons. The upper and lower Van Norman Reservoirs are old earthen dams constructed by the hydralic-fill method in 1915 and 1919. The lower dam, built in 1915, nearly collapsed and is no longer in use. The upper dam built in 1919 settled about 3 feet and moved laterally about 5 feet at the crest, but did not collapse and is being used at reduced capacity. (Department of Commerce, December, 1971, p. 369).

The collapse of five new freeway overpasses disrupted transportation arteries. Public utilities were interrupted and underground water, gas and sewer lines were also damaged. The converter station at the Pacific Intertie of PG & E, completed in 1970 suffered $30 million worth of damage. The General Telephone Company suffered $4.5 million in damages and 10-20,000 customers lost service for a month. Gas pipelines broke because of ground deformation and 17,000 customers lost service from 4-12 days. In addition the water pipes ruptured in over 1,000 places and the lines were plugged with sand and debris put into the system from damages at the Lower San Fernando Dam. (Jennings, 1971).

SECONDARY EFFECTS

A major secondary effect resulting from the damage of structures is the disruption of transportation, communication and power systems. In times of disaster these systems are essential for mitigating disaster effects. Structures which house vital or critical facilities such as public buildings which coordinate and administer disaster services, fire stations and hospitals, should remain operational after an earthquake. The disruption of transportation arteries could increase the chance of accidents and prevent movement of emergency vehicles.

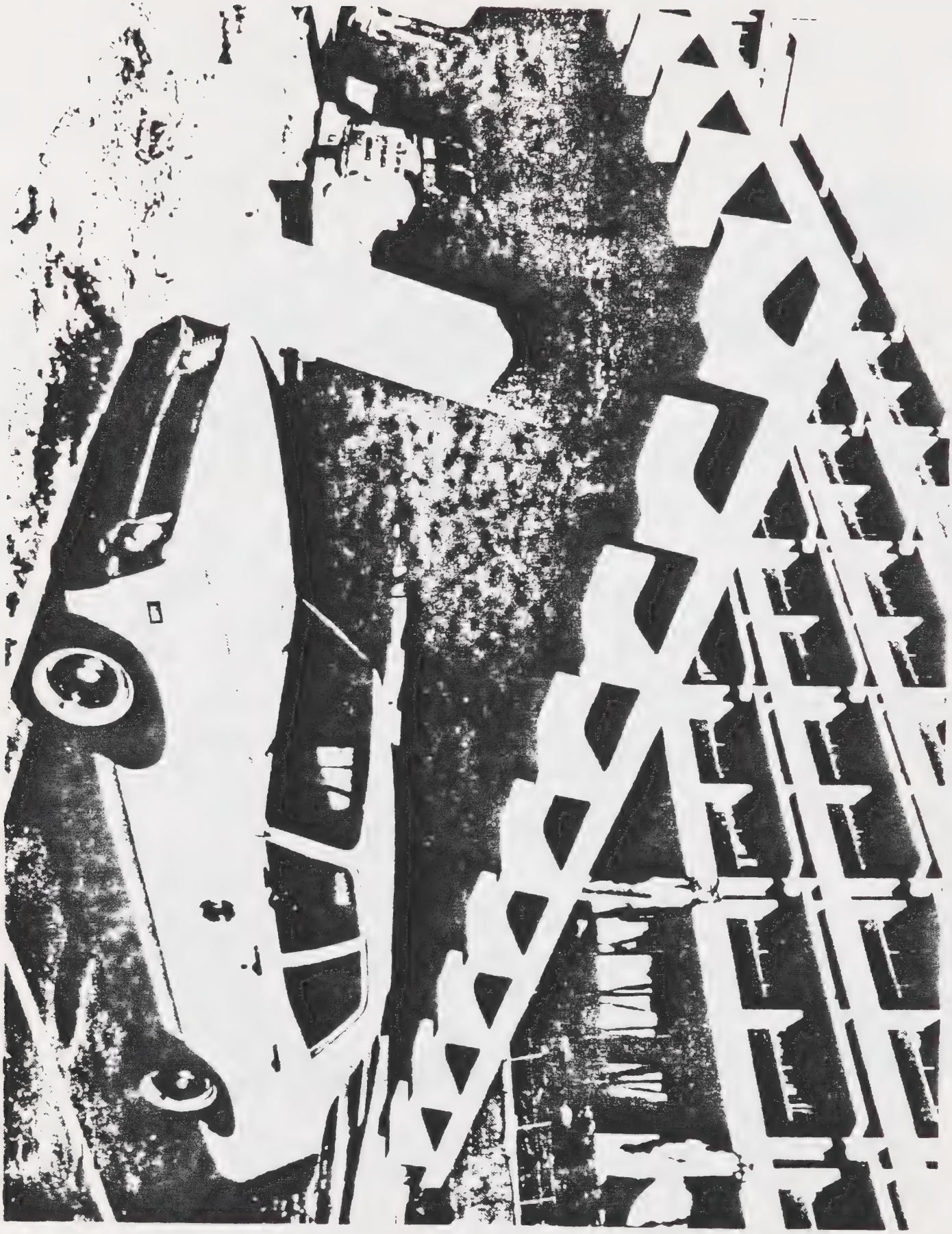
Another effect is the cost of rebuilding. Replacing a building is often more expensive than when it was originally built. Since reinforcement during ordinary construction projects only adds 1-2% to the cost it is not very practical to exclude sufficient reinforcements. (Joint Legislative Committee, 1974, p. 9). Both government and individuals are burdened with heavy replacement costs. Some things can never be replaced.

Illustration 15.4

Old building at Veterans Hospital had a skeleton concrete frame and unreinforced hollow tile filler walls. Newer parts of the hospital complex built under modern structural codes performed much better than the older sections.

SOURCE: R. IACOPI, Earthquake Coast.

Illustration 15.5



CRUSHED AMBULANCES *Olive View Hospital*

SOURCE: California Earthquake, 1971, T.F.K. Publications

GENERAL INVENTORY OF THE HAZARD

LOCATION OF THE HAZARD

At the present time there is no comprehensive survey or information available on the location of structural deficiencies in the County of Ventura, and it is beyond the scope of this report to conduct this survey. Such an inventory would identify the seismic risk that presently exists, through survey and evaluation of public buildings, hospitals, schools, churches, industrial buildings, freeways, dams, utilities, etc. From this the need for the abatement of this risk can be evaluated and programs developed.

In a study of a small portion of Camarillo which was surveyed in a general manner by the Ventura County Building and Safety Department, the majority of the residences were discovered to be in some way "substandard" as would be defined in the housing code. Though "substandard" reflects many deficiencies and not necessarily seismic safety, nearly all of these structures were built before 1933. This could be considered a hazardous condition, because structures built before 1933 did not require reinforcement against seismic forces and past experience indicates they have generally done very poorly in earthquakes. This is especially true for masonry and concrete buildings, such as those found extensively in Ojai. Wood frame residences are generally much safer, but if they were built over 40 years ago and not kept in good condition a hazard could exist.

There are other concentrations of structures considered substandard and these areas warrant further study to evaluate existing levels of risk and the abatement of risk. Such areas which might warrent further study include: Saticoy, Nyeland Acres, El Rio, Moorpark, Box Canyon, and older parts of Ventura and Oxnard.

HISTORY OF THE HAZARD

The largest earthquake known to have affected Ventura County was centered near Fort Tejon in 1857. The damage was severe from a shock estimated around a magnitude of 8.0. It was reported that the roof of the Mission church at San Buenaventura collapsed, and six miles from the mouth of the Santa Clara River the bed of the river was severly cracked. The cracks were described as 6-8 inches across, which was probably due to lurching and there was indication of liquefaction in the saturated alluvium. (California Division of Mines and Geology, 1973, p. 40). Such severe ground-shaking in the same area today would undoubtedly cause severe damage.

Since that time no major earthquakes centered in the County have been recorded. The strongest recorded measuring a magnitude of 5.7 , minor damage was caused in Ventura by the Santa Barbara 1925 earthquake, an offshore shock in 1941. During the 1971 earthquake structural damage occurred in Simi Valley to older buildings, including a church.

Within the county a 4.7 shock was centered near Port Hueneme in 1957 and some minor structural damage occurred as a result. On February 21, 1973, an earthquake was centered near Point Mugu and measured on the Richter scale at 5.7. Brick chimneys and buildings in Oxnard were damaged, as were some bridges.

DEFINITION OF THE HAZARD ZONE

For this study no delineation of a hazard zone is possible within the scope of this study. Such a zone could only be developed after a survey identifying and classifying various structures that may create seismic hazard.

The following criteria could be considered as guidelines for determing whether a building is in need of inspection for structural deficiencies. These criteria were presented in the report of the Joint Committee on Seismic Safety to the State Legislature.

1) The building was constructed before 1933, or a later designated date. Later dates may be established for a specific local jurisdiction, based on an evaluation of each jurisdiction's history with respect to design standards and effectiveness of enforcement. This should probably be done by the proposed State Commission on seismic safety.

2) The building lies within a zone designated as probably subject to substantial earthquake shaking. To facilitate administering the hazards reduction program, the zone areas should conform to existing governmental boundaries, and avoid bisecting individual local jurisdictions.

3) The building is of a construction with "load-bearing-unreinforced masonry walls using lime and mortar, and wood floors and roof.

GENERAL MANAGEMENT RESPONSIBILITY

INVESTIGATION

Structural deficiencies has been and continues to be studied by the Structural Engineers Association of California, who have a state-wide Seismology Committee. This committee was first formed in 1957 to resolve differences in existing codes and prepare a single set of recommendations for lateral-force criteria. (Joint Legislative Committee, 1974, p. 198). These recommendations are updated regularly and represent the present state of knowledge regarding structural safety and are incorporated in the Uniform Building Code.

In 1969 the State Legislature formed the Joint Committee on Seismic Safety and has since conducted hearings and investigations of past disasters. They have developed current standards, policies and program proposals. Their final report was published in January, 1974. Information on structural characteristics of buildings throughout the County is presently being gathered by the County Planning Department.

WARNING AND ALLEVIATION

In 1970, the State Legislature adopted amendments to the Health and Safety Code that requires the State Commission of Housing and Community Development and the governing body of each city and county to in part adopt rules and regulations which are contained in the Uniform Building Codes, 1970, Uniform Plumbing Code, 1970, Uniform Mechanical Code, 1970 and the National Electrical Code, 1971. However, local entities have the ability to adopt these provisions as the situation warrants, and does not discourage development of stricter regulations.

The County Board of Supervisors and the respective city councils have the responsibility for the development and implementation of building standards and the alleviation in hazardous situations for nearly all structures. These policies are enforced by their Building and Safety Departments; or in the case of the cities of Ojai, Camarillo, and Simi Valley, the services are contracted from the County.

Because of the technical nature of the subject only the ability of various departments to enforce the standards will insure seismic safety. Trained personnel capable of checking plans and inspection are of utmost importance. Ventura County is fortunate to have civil engineers and a structural engineer on their staff, but this is not true of all departments in the County. The importance of plan checking and inspection should not be underestimated. At the Joint Committee on Seismic Safety May 1972 earthquake conference, these points were made:

> *Less than 20% of building designs cross the desk of an engineer competent to check them. Of those that are checked competently, half do not meet seismic safety standards.*
>
> *Failure to meet present codes are caused by: 1) not enough money for building inspection function, and 2) a hack attitude on the part of some professionals.* (Robert W. Giese, Building Inspector, Contra Costa County).
>
> *Substantial increases in earthquake resistance can be achieved with little increase in cost, if there is proper coordination on seismic safety measures and needs between architects, planners, engineers, and other professionals concerned with the location, design and construction of buildings.* (Carl B. Johnson, Consultanting Structural Engineer, Los Angeles).

For meeting seismic safety standards, the approval and inspection of the construction of public schools (excluding State Colleges and Universities) and recently of hospitals is regulated at the state level. The Department of Transportation is responsible for State highways and freeways. The Department of Water Resources is responsible for the safety of dams in California, except Federally owned dams.

FINDINGS

PROBABILITY OF OCCURRENCE

From the evidence and the studies of geologists, the possibility of a major earthquake occurring in or near Ventura County is inevitable. From the past performance of structures in earthquakes it can be assumed that a significant hazard does exist in Ventura County. However, there can be no definitive statement, since information for a local inventory is not available at this time. Such an assessment requires a thorough evaluation of exisitng structures.

The probability of occurrence can be reduced to a minimum through careful land use planning and adequate reinforcement of structures against seismic forces. Maximum earthquake safety can be achieved through a comprehensive approach. Such an approach would include these areas of concern: "1) formulating engineering standards for new construction, 2) enforcing such standards and 3) reviewing existing structures and repairing or replacing those found hazardous." (Joint Committee, p. 164)

SEVERITY OF THE HAZARD

During an earthquake the greatest cause of death and property loss are structural deficiencies. In the event of an earthquake, the severity of the effects is dependent on the condition and the structural details of the building.

The structural failure of vital and critical facilities can increase the severity of damage. It should be recognized that such facilities as hospitals, fire stations, public buildings and communications centers should remain functional after the earthquake to help mitigate the disaster effects. Other facilities such as dams could have catastrophic effects if they failed.

RESOURCES AFFECTED

Should an earthquake affect the area, there could be substantial loss of lives and property. In addition public utilities, gas, water, and sewage lines could be disrupted and may be difficult to re-establish rapidly.

NATURE OF INFORMATION

There is a wealth of information on the ability of structures to withstand lateral forces and much of this

has been documented in engineering studies of the San Fernando earthquake. However, specific information on Ventura County's seismic structural deficiencies has not been accumulated. Therefore, conclusions in this study are mainly based on experiences of other areas and some studies on the effects of past earthquakes in Ventura County.

SEISMIC
SAFETY

RECOMMENDATIONS
ON OPTIONS

RECOMMENDATIONS ON OPTIONS

The following are recommendations made by various authorities, committees, citizen groups, etc.; which are intended to guide in the selection of options which most appropriately respond to the particular conditions encountered.

CITY/COUNTY PLANNING ASSOCIATION

GENERAL RECOMMENDATIONS

That all the entities in the county cooperate in further investigation of the hazards affecting the agencies within the county.

That all people affected by an immediate hazard receive a general notification.

That the concept of a Special Studies Zone or other similar designation be established for all applicable hazard zones which would require detailed studies of the hazard before certain development or activity could take place.

That each entity should undertake a general evaluation of its warning and evacuation plans in response to the hazards in this element

SPECIFIC RECOMMENDATIONS

Tsunami

Recommendation - That each affected entity adopt or update their seismic sea wave warning plan, possibly along the lines of the County Basic Plan.

Tsunami and Seiche

Recommendation - That vital or critical facilities be restricted in the hazard zone or designed to mitigate the hazard.

Fire

Recommendation - That each entity adopt the provisions of a comprehensive fire prevention program such as the Fire Safe! program of the County Supervisors Association of California.

Aircraft Accident

Recommendation - Restrict land uses in the high hazard areas to those having only low population densities

and no critical facilities. Limit facilities with high concentrations of population in the low hazard areas.

Beach Erosion

Discourage buildings and facilities from locating in beach erosion hazard zones, so that the shoreline can undergo its natural fluctuation patterns.

Discourage all uses that would contribute to beach erosion from locating on sandy beaches.

Local governments should coordinate with the County Public Works Department and the Army Corps of Engineers in setting up a county wide beach (sand) management program. Such a program would deal with all aspects of beach management, including the sources of sand. It would anticipate problems dealing with flood control operations and beach erosion prevention measures, conduct relevant studies, emphasize flood plain management as an alternative to flood control and assist local governments in planning in beach erosion hazard zones.

Landslide/Mudslide

Incorporate the use of the landslide/mudslide hazard zones in future land use determinations by avoiding intense development. Require soils investigations and the use of appropriate safeguards in the design.

Fault Displacement

Adopt the Policies and Criteria of the State Mining and Geology Board with Reference to the Alquist-Priolo Geologic Hazard Zones Act in regard to requirement of geologic-seismic investigations prior to approval of any proposed development within the primary and secondary fault zones to prevent development directly over an active fault.

Ground Shaking

Conduct a structural evaluation of all vital and critical facilities to insure conformance to current Uniform Building Code requirements in regard to resistance to ground shaking.

Adopt and provide qualified enforcement of the Uniform Building Code and other appropriate design requirements for all land development.

Liquefaction

Require geologic-seismic and soils engineering investigation of soil liquefaction potential for proposed critical facilities and strucutes designed for alrge concentrations of people.

Structural Deficiencies

Develop a program to evaluate the seismic structural safety of existing public and vital facilities and to bring up to the standards of the current uniform building code facilities which are considered hazardous.

Continue to support the adoption and enforcement of the most current provisions of the Uniform Building Code regarding seismic safety.

Subsidence

That Ventura County give all possible support to programs aimed at fulfilling the state's recommendations on subsidence which allow us to knowledgeably assess the degree of hazard it presents.

Expansive Soils

Continue to conduct the existing control programs which have adequately minimized damage from expansive soils.

Flood

Owing to the necessity of Federal Flood Insurance to qualify for loans from federally regulated lending institutions it is recommended that:

Each entity adopt the standards of the National Flood Insurance Act to qualify for or maintain eligibility and that these standards be enforced by those departments having enforcement responsibility.

ADOPTED: August 8, 1974
September 19, 1974

VCAG GENERAL PLAN ELEMENTS POLICY ADVISORY COMMITTEE
POLICY RECOMMENDATIONS
SEISMIC AND SAFETY ELEMENT

GENERAL RECOMMENDATIONS

1. All the entities in the county continue to cooperate in investigation and alleviation of the seismic and safety hazards affecting the county.

2. All people affected by a hazard receive a general notification of their inclusion in a hazard zone. *Hazard Zone: A General Geographic Area Potentially Affected by the Hazard.

3. The concept of a Special Studies zone, or other similar designation, be established for all applicable hazard zones which would require detailed studies of the hazard potential before certain types of development or activity could take place.

4. Vital and critical public services should be required, if located within the Special Studies zone, to conduct detailed studies of the hazard and be required to take the appropriate action to alleviate potential hazard impacts.

5. In each entity there be a general evaluation and updating yearly of its warning and evacuation plans in response to the hazards defined and described in this General Plan Element.

6. That all entities seek, through cooperative action, to adopt Uniform Building Codes that include the appropriate safeguards for the hazard potentials existing in their jurisdiction. The standards should be established on a uniformly consistent basis throughout the County.

SPECIFIC RECOMMENDATIONS

Tsunami - Adopt or update their seismic sea wave warning plan, along the lines of the nationally recognized "County Basic Plan."

Tsunami and Seiche - *Seiche is wave action in an enclosed body of water, e.g. lake or harbor. Vital or critical facilities be restricted in the hazard zone.

Fire - Adopt the provisions of the comprehensive fire prevention program "Fire Safe" program of the County Supervisors Association of California.

Flood - Adopt the standards of the "National Flood Insurance Act" to qualify for or maintain eligibility and that these standards be enforced by those departments having enforcement responsbility.

Aircraft Accident - Restrict land uses in the high hazard areas to those having only low population densities and no critical facilities. Limit facilities with high concentrations of population in the low hazard areas. Avoid locating airports in highly populated areas.

Beach Erosion - Discourage buildings and facilities from locating in beach erosion hazard zones, so that the shoreline can undergo its natural fluctuation patterns. Discourage all uses from locating on sandy beaches which would tend to cause beach erosion. Local governments should coordinate with the County of Ventura, the Army Corps of Engineers and others in setting up a county wide beach (sand) management

program. Such a program would deal with all aspects of beach management, including the sources of sand. It would anticipate problems dealing with flood control operations and beach erosion prevention measures. The program would emphasize flood plain management as an alternative to flood control and assist local governments in planning in beach erosion hazard zones.

Landslide/Mudslide - Incorporate the use of the landslide/mudslide hazard zones in future land use determinations by avoiding intense development. Require soils investigations and the use of appropriate safeguards in the design of structures.

Fault Displacement - Adopt the Policies and Criteria of the State Mining and Geology Board with Reference to the Alquist-Priolo Geologic Hazard Zones Act in regard to requirement of geologi-seismic investigations prior to approval of any proposed development within the primary and secondary fault zones to prevent development directly over an active fault.

Ground Shaking - Conduct a structural evaluation of all vital and critical facilities to ensure conformance to current Unifrom Building Code requirements in regard to resistance to ground shaking. Adopt and provide qualified enforcement of the Uniform Building Code and other appropriate design requirements for all land development.

Liquefaction - Require geologic-seismic and soils engineering investigation of soil liquefaction potential for proposed critical facilities and structures designed for large concentrations of people.

Structural Deficiencies - Develop a program to evaluate the seismic structural safety of existing public and vital facilities and to bring up to the standards of the current Uniform Building Code facilities which are considered hazardous. Continue to support the adoption and enforcement of the most current provisions of the Uniform Building Code regarding seismic safety.

Subsidence - Support programs aimed at fulfilling the State's recommendations on subsidence as referenced in The Urban Geology Master Plan for California, which allows us to knowledgeably assess the degree of hazard it presents.

Expansive Soils - Continue to conduct the existing City and County control programs which have adequately minimized damage from expansive soils.

ADOPTED BY THE GENERAL PLAN
ELEMENTS POLICY ADVISORY
COMMITTEE - 9/4/74

The following is from:

CALIFORNIA DIVISION OF MINES AND GEOLOGY,
Urban Geology Master Plan, 1973, Pages 51-68.

RECOMMENDATIONS FOR REDUCING GEOLOGIC HAZARDS LOSSES IN CALIFORNIA

General Statement

Section 3 of this report describes the ten principal geologic problems that threaten California: the geologic nature of each problem, statewide distribution by severity levels, history of losses, the most effective measures for reducing the losses from problems, the agencies that deal with the problem, and the state of the art in coping with each problem. Section 3 is, in effect, a capsule inventory of what we know about the problems.

Section 4 lists, in broad form, the action programs that can be implemented to reduce future losses resulting from each geologic problem. These action programs constitute the recommendations of the Urban Geology Master Plan for California. The recommended programs are of two kinds: those that propose to improve the state of the art and to develop new and greater capabilities for dealing with California's geologic problems on both the technical and the non-technical levels, and those that propose to expand the application of present state of the art procedures to reduce losses further. Many of the recommended programs are presently active to some degree, but need to be expanded or accelerated; others need to be instituted.

The recommended actions involve four broad types of objectives, arranged roughly by time sequence relative to the expected occurrence of particular geologic hazard events:

1. Avoid or prevent damage from future events by knowing the nature and location of probable events, taking steps to control those events, and guiding human activities away from hazard-prone areas in which it is not feasible to control the hazards.
2. Minimize unavoidable or unpreventable losses by supplying thorough analysis of the geologic environment prior to design, then provide safe design, construction, and maintenance practices by adequate codes and ordinances.
3. Take emergency action to save lives and property during or immediately following any particular disastrous event.
4. Take longer-range recovery action following a particular event, to study the lessons, reestablish normal life, and rebuild.

Recommended action programs are based or referenced for each of the 10 urban geologic problems together with recommendations as to which organizations should implement each program.

Priorities—as to which problem should be considered first, in which localities actions should be started first, which loss-reducing actions should be initiated first, or which action organization should act first to initiate its programs—are considered in Section 5.

Table 4, "Loss reduction functions", lists the seven main functions that can and should be performed to reduce losses from geologic problems. All of the action programs recommended for specific geologic problems in the pages following table 4 fall within these seven functions. The recommended actions are presented by problem, in the order given in table 4.

The loss reduction functions in table 4 and the recommendations that follow are not equally important in reducing losses from each of the 10 geologic problems; a given function may apply only indirectly to certain geologic problems, or it may be adequately performed now.

Loss reduction functions cannot be compared to each other in importance for reducing the losses from any single geologic problem. The functions are basically sequential in application, like links in a chain of operation: none does the whole job itself, yet none can be neglected entirely.

The variability of importance of the functions within and between the several geologic problems is apparent from the number and type of programs that are recommended within each function's heading, problem by problem.

This classification of loss-reduction programs repeatedly emphasizes two separate types of actions that are necessary before a recommended function is indeed accomplished:

1. DEVELOP CAPABILITY
   Learn how to carry out the needed program. Develop the capability or improve the state-of-the-art, and develop or evolve a standard procedure for accomplishing the program. This capability must be made available to those responsible for doing the job.
2. DO THE JOB.
   Properly apply the capability to avoid, prevent, or correct the problem.

The need for this obvious two-step approach is exemplified in the recommendations to produce consistent and complete socio-economic analysis information for each geological problem. First, to develop needed capability, a standard terminology needs to be devised, and a standard format developed for collecting and recording the needed kinds of data, in terms of the units to be used; a standard procedure needs to be devised designating sources to be canvassed and organizations responsible for collecting, collating, and storing the information. Otherwise the record will continue to be made up of fragmentary data about various kinds of losses, which may otherwise be combined in unknown ways with other loss (or loss-reduction) data and may contain unexpressed assumptions and incompatible units which are incomplete or overlapping in some time-spans or localities. This procedure should be developed with broad participation so as to be generally acceptable, and then made available to all concerned.

Second, the many agencies responsible under the developed procedure must effectively perform the indicated tasks to collect the socio-economic data in the accepted manner.

Table 4 Loss-reduction functions.

A. DATA FUNCTIONS
1. Research programs to gather, prepare, and interpret data.
2. Information dissemination.

B. PLANNING FUNCTIONS
1. Land-use planning.
2. Recovery planning.

C. ENGINEERING FUNCTIONS
1. Planning and design.
2. Construction.

D. ENABLING FUNCTIONS
1. Political and administrative action.
   a. Authority, policy guidance, action dates.
   b. Resources (funds, manpower) to conduct action programs.
2. Coordination and operational guidance (e.g., criteria, model language).

E. ENFORCEMENT FUNCTIONS
1. Governing body and administrative review and management.
2. Operational inspection and enforcement.

F. EMERGENCY-ACTION FUNCTIONS
1. Overall coordination, direction, and guidance.
2. Contingency planning, preparations, and testing.
3. Response.
4. Post-disaster review.

G. OVERALL COGNIZANCE AND COORDINATION FUNCTIONS
1. Monitor progress of loss-reduction measures and techniques.
2. Provide overall coordination mechanics.

Recommended Programs

The following section presents the action programs recommended for immediate implementation to reduce losses from the ten geologic problems considered in the Urban Geology Master Plan project. Collectively, these recommendations constitute the principal end product of the California Urban Geology Master Plan.

The ten geologic problems are arranged in descending order of potential total dollar loss in the state, including dollar-equivalent life-loss, property damage, and intangible losses, from 1970 to the year 2000 if no change is made in the type and level of loss-reduction measures being taken in 1972. (See table 1, in Section 1.) To the extent the amount of potential loss represents the potential benefit if loss-reduction measures could be 100 percent successful, this ranking represents one approach to an order of priority for implementing Urban Geology Master Plan recommendations.

The recommended programs are classified according to the outline presented in table 4. Detail varies from heading to heading and between geologic hazards, according to the nature of the hazard and the applicability or effectiveness of the several types of recommendations.

The numbers in parentheses following each recommended program indicate:

(1) This is a new program.

(2) This is an enlargement of a program now active in some phases or to some degree in California, it should be expanded in scope, or extended to other jurisdictions, or accelerated to completion, above its 1972 levels by at least 100 percent.

(3) This represents a combination of a program now active, at about its 1972 scope, coverage, and emphasis.

Recommendations in bold-face type are the Major Recommendations of the Urban Geology Master Plan—those programs that stand to produce the largest amount of loss reduction in each problem if pursued vigorously.

Abbreviations Used in This Section

STATE AGENCIES

CDF	California Division of Forestry (In Department of Conservation)
CDH	California Division of Highways (In Department of Public Works)
CDMG	California Division of Mines and Geology (In Department of Conservation)
CDOG	California Division of Oil and Gas (In Department of Conservation)
CE	California Council on Intergovernmental Relations
DC	California Department of Corporations
DI	California Department of Insurance
DGS	California Department of General Services
DHCD	California Department of Housing and Community Development
DNOD	California Department of Navigation and Ocean Development
DPR	California Department of Parks and Recreation
DPW	California Department of Public Works
DRE	California Department of Real Estate
DVA	California Department of Veterans Affairs
DWR	California Department of Water Resources
GEC	California Governor's Earthquake Council
JCLS	Joint Committee on Seismic Safety of the California Legislature
MGB	State Mining and Geology Board
OAC	California Office of Architecture and Construction (In Department of General Services)
OES	California Office of Emergency Services
OMI	Office of Intergovernmental Management
OPR	California Office of Planning and Research
SLD	California State Lands Division

FEDERAL AGENCIES

BLM	U.S. Bureau of Land Management
DCPA	U.S. Defense Civil Preparedness Agency
EPA	U.S. Environmental Protection Agency
FHA	U.S. Federal Housing Administration (In Department of Housing and Urban Development)
FIA	U.S. Federal Insurance Administration (In Department of Housing and Urban Development)
HUD	U.S. Department of Housing and Urban Development
NASA	U.S. National Aeronautics and Space Administration
NOAA	U.S. National Oceanic and Atmospheric Administration
NSF	U.S. National Science Foundation
OEP	U.S. Office of Emergency Preparedness
ONR	U.S. Office of Naval Research
SCS	U.S. Soil Conservation Service
USBR	U.S. Bureau of Reclamation
USCE	U.S. Corps of Engineers (In Department of Defense)
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey

LOCAL GOVERNMENT AND PRIVATE SECTOR ORGANIZATIONS

AEG	Association of Engineering Geologists
AIA	American Institute of Architects
AIME	American Institute of Mining, Metallurgical, and Petroleum Engineers
AIP	American Institute of Planners
ASCE	American Society of Civil Engineers
CSAC	County Supervisors Association of California
CSLL	California Savings and Loan League
DWP	Los Angeles City Department of Water and Power
FAIR	Fair Access to Insurance Requirements
ICBO	International Council of Building Officials
LCC	League of California Cities
MWD	(Los Angeles Area) Metropolitan Water District
PG&E	Pacific Gas and Electric Company
SCE	Southern California Edison Company
SEAOC	Structural Engineers Association of California

Loss-Reduction Programs

I. EARTHQUAKE SHAKING

The Governor's Earthquake Council has recommended a comprehensive program to reduce losses from seismic events in "First Report of the Governor's Earthquake Council, November 21, 1972".

The Joint Committee on Seismic Safety of the California Legislature is conducting various investigations and has issued several progress reports directed primarily to possible legislative actions to reduce losses from seismic events. A number of pieces of seismic safety legislation were passed in 1971 and 1972 reflecting the Joint Committee's work, and more are expected to be enacted in 1973 and future years. The final Joint Committee report is due July 1, 1974.

Rather than duplicate the recommendations of these organizations, the Urban Geology Master Plan refers to the above publications and endorses their recommendations.

One additional recommendation of the Urban Geology Master Plan is to extend the scope of the successor body (Governor's Earthquake Council Recommendation 26 in the *First Report*, page 55) to consider, in addition to seismic hazards, all the other geologic problems covered in this report except loss of mineral resources and flooding.

Recommended Programs	Recommended Agencies*
A-B. (Not applicable)	
G. OVERALL COGNIZANCE AND COORDINATION FUNCTIONS	
Extend scope of successor body to GEC and of JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, page 55) to provide continuing cognizance over loss-reduction programs for all geologic problems except loss of mineral resources and flooding.[1]	(body to be established)

[1] Essentially a new program

* = Lead or co-lead agency

Recommended Programs	Recommended Agencies
II. LOSS OF MINERAL RESOURCES (DUE TO URBANIZATION)	
A. DATA FUNCTIONS	
1. Research programs to develop data on mineral deposits.	
a. Geologic processes that cause mineral deposits to form where they are. (Not applicable to loss-reduction.)	
b. Distribution of mineral resources.	
Review, update, and improve (wherever warranted and feasible) maps and descriptions of all known deposits of useful or potentially useful minerals within 100 miles (or commercial haul distance if shorter) of urban areas throughout California. Include all undepleted deposits, whether formerly, currently, or potentially active, regardless of their stage of development or value of past production, if any. Include metals, industrial mineral substances, and mineral fuels.	CDMG*, CDOG, USBM, USGS, County geologists (consultants), Mining associations
i. Statewide scale: (1 : 250,000–1 : 1,000,000)[2]	CDMG*, USGS
ii. County/Regional scale: (1 : 62,500–1 : 125,000)[2]	CDMG*, USGS
iii. Detail or quadrangle scale: (1 : 12,000–1 : 24,000) for urban area deposits, only.[3]	CDMG*, Counties, Cities
c. Develop socio-economic information and analyses.	
i. Establish a standard procedure for gathering, collating, and reporting data on the economic and social costs of mineral deposit loss problems—including both loss and loss-reduction costs. The aim is to enable the systematic collection of all pertinent data as it is available, in consistent form so that information collected at different times and places can be correlated and used in statewide compilations and analyses.[1]	CDMG, USBM*, Universities
ii. For every urban region in California and for those outlying regions that have mineral resources serving urban areas, complete a standard economic analysis report, including demand projections, on the problem (or potential problem) of loss of mineral deposits per procedure established under recommendation A-1-c-i.[2]	CDMG, Regional planning agencies, Counties*, Cities
d. Develop research information on engineering problems associated with loss of mineral resources.	
Determine probabilities or limitations of possible development of each mineral (or mining) district, considering limits of valuable material, and removal problems. Consider also forecasts of market demand and any potential engineering problems facing removal of the valuable materials.[2]	CDMG, USBM*, USGS, Mining associations, Counties
e. Case-study projects: Conduct research study of major cases where mineral resources have been lost, or threatened to be lost, due to urbanization processes (e.g., one study in southern California area, one in San Francisco Bay area).	CDMG*, USBM, Minerals industry, City and county, planning departments
2. Information-dissemination programs.	
a. General public information program.	
Prepare and distribute basic educational materials about the economic, environmental, and social relationships of mineral resources to urban development.	CDMG*, USBM, USGS, Minerals industry
b. Information clearinghouse and data-bank program.	

[1] Essentially a new program
[2] Expansion of 1972 programs
[3] Continue program at 1972 level

* = Lead or co-lead agency
Bold face type = Major recommendation of Urban Geology Master Plan

Recommended Programs	Recommended Agencies
i. Continue to serve as clearinghouse and provide data bank service for all information on California mineral resources[1]	CDMG*, USBM
ii. Expand the types of mineral resource information covered in the data bank to include those recommended in this section[1]	CDMG*, USBM, USGS
B. PLANNING FUNCTIONS	
1. Land-use planning	
a. Produce publication describing problems of mineral deposit loss due to blocking of access before the valuable materials can be removed, and the implications of this problem for land use planning and public policy[1]	CDMG*, USBM, USGS, AIP, CIR, OPR
b. Adopt practice of using mineral resource information in determining land-use capability and in the land use planning, zoning, and permitting procedures of local governments and land-custody agencies. Strengthen mineral resources aspects of conservation elements in general plans, and emphasize their application[1]	City and county planning* departments Land-custody agencies BLM, USBR, DPR, SLD
2. Recovery planning	
Apply long-range concepts of conservation, reclamation, and reuse of mineral resource lands in long-range community and land-custody planning procedures[1]	CDMG, USBM, City and county planning departments* Land-custody agencies, BLM, USBR, SLD
C. ENGINEERING FUNCTIONS	
Improve quarrying and mining procedures to enable the removal of mineral materials within the urban environment with minimum adverse effects. Also improve mining procedures to facilitate long-range policies of multiple sequential uses of mineral deposit lands[1]	USBM*, CDMG, Minerals industry — firms and associations, Universities, Cities, Counties, ADMB
D. ENABLING FUNCTIONS	
1. Political and administrative actions	
a. Provide authority, policy, and guidance	
i. Adopt strengthened conservation element of general plans, incorporating long-range approach to mineral resource utilization[1]	City councils, Boards of Supervisors
ii. Adopt mineral resources zoning ordinance and procedures and practices for making it effective[1]	City councils, Boards of Supervisors
b. Provide resources (funds and manpower) to enable effective administration of the strengthened mineral resources element in the general plan and the mineral resources zoning ordinance	City councils, Boards of Supervisors
2. Coordination and operational guidance	
a. Develop and make information available to land use planners, zoning administrators, and mineral producers on proven techniques for developing and extracting mineral deposits in urban areas, applying available geotechnical and socio-economic information about mineral deposits. The aim is to minimize undesirable consequences to the physical, economic and social environment, both immediate and long-range, of mining and quarrying operations. Include considerations of designing the quarry development plan, and managing the long-range reclamation of depleted sites so they will be suitable for high-demand urban uses[1]	CDMG, USBM, AIP, AEG, Cities, Counties, CSAC*, LCC
b. Establish guidelines, and produce model language for effective conservation element of the general plan that properly treats problems of mineral resource conservation, also suggestions for effective administration of that element[1]	CDMG, AIP, Cities, Counties
c. Provide model of mineral recovery zone ordinance (cf. Riverside County's MR zone), and guidelines for administering it effectively[1]	CDMG, AIP, CIR*, OPR, Cities, Counties
d. Produce case-studies or other guidance for applying mineral resource information in environmental impact considerations[1]	CIR, OPR*, CDMG, Cities, Counties
E. ENFORCEMENT FUNCTIONS (Not applicable)	
F. EMERGENCY ACTION FUNCTIONS (Not applicable)	
G. OVERALL COMPLIANCE AND COORDINATION FUNCTIONS	
1. Make periodic evaluation of progress on recommendations in this section and publish annual status reports[1]	CDMG*, OPR
III. LANDSLIDING	
A. DATA FUNCTIONS	
1. Research programs to develop data on landsliding	
a. Research into geologic and other natural processes and conditions that cause or relate to slope stability and landslide movement and their interrelationships	CDMG*, USGS*, Universities, AEG, DWR, USBM, CDH
i. Develop state of the art, including new instrumentation, to enable analysis of old landslides as to their history, and date(s) of prior movement, and their propensity for renewed movements[1]	USGS*, CDMG*, Universities, DWR, CDH
ii. Develop and improve the state of the art and inexpensive instruments for predicting and detecting incipient renewed movement in known landslides for warning purposes[1]	Private sector*, Universities, CDH, DWR
iii. Devise workable procedure and criteria to determine the relative stability of slopes. The criteria must be applicable in the field, and should relate the stability characteristics to the uses to which the area can be put[1]	CDMG*, USGS*, AEG, Cities, Counties
b. Evaluate the varying degrees of slope instability in the urban areas of California	
i. Compilation (statewide) scale program (1:250,000–1:1,000,000)[1]	CDMG*, USGS
ii. County/regional scale program (1:62,500–1:125,000)[1]	CDMG*, USGS, County consultants
iii. Detail or quadrangle scale program (1:12,000–1:24,000).[1]	CDMG*, USGS*, Cities, Counties, Consultants
iv. Project-scale mapping for land-use permit decisions or construction purposes (1:1200–1:12,000).[1]	Consultants for local governments or developers
c. Develop socio-economic information and analyses	
i. Establish standard procedure for gathering and compiling figures on landslide damage loss and costs of remedial efforts, for accurate and comparable statistics, devise a form that can be used and compiled statewide, and designate an information clearinghouse[1]	ICBO,* AEG, ASCE, LCC, CSAC, OES, SEAOC, DI, CIR

[1] Essentially a new program
[2] Expansion of 1973 programs
[3] Continuing program at 1973 level

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Recommended Programs	Recommended Agencies
ii. For every reportable landslide occurrence, complete a standard report for permanent record and clearinghouse use.[1]	City and county agencies and/or officials
d. Perform engineering response research.	
i. Investigate behavior of surficial materials at proposed construction sites to determine safe design of foundation and structure. Consider effects of site-preparation work and control accordingly.[2]	Consultant for local government site-approval section, Consultant for builder, Universities, AEG, ASCE
ii. Investigate design and construction standards for foundation and structure to be built at any proposed site, relative to the expectable stability of the geologic setting.[2]	Local government site-approval section, Consultant for builder
e. Event-study opportunities.	
i. Whenever a landslide moves significantly, or damages a foundation or structure, conduct detailed study of the geologic materials and, if present, foundations and structures. Make information on results of studies readily available.[2]	CDMG*, USGS*, City and county building officials, Clearinghouse
ii. During any post-earthquake investigation, search immediately for incipient landslides that may be triggered by aftershocks.[2]	CDMG*, USGS, City and county personnel
2. Information-dissemination programs.	
a. General public information program. Prepare and distribute basic educational materials about landsliding in general, emphasizing local and regional applications, and what the homeowner should know and do about landslides, both before and after they occur.[2]	CDMG*, USGS, CSLL, DI, AEG, ASCE, DRE*, FHA
b. Information clearinghouse and data-bank program. Gather, store and disseminate all pertinent information on landsliding.[1]	CDMG*, USGS
B. PLANNING FUNCTIONS	
1. Land-use planning programs. Develop procedures and pursue practice of incorporating landslide and slope-stability information into procedures used to determine land-use capability, and apply in local government and land custody agency land-use planning procedures (e.g., strengthen safety element and emphasize its application).[2]	AIP, LCC, CSAC, CIR*, OPR, CDMG, AEG, USGS, ASCE, City and county planning departments, Land-custody agencies (e.g., BLM, USFS, DPW, DPR, SLD, DGS, CDF)
2. Recovery planning programs. Conduct study to evaluate public and private landslide-insurance programs in California, considering combination with insurance for all natural disaster losses; recommend alternatives for improvement.[1]	DI*, FIA*, DWR (Insurance coordinator), DRE, FAIR, DHCD, JCSS, DVA, FHA, Insurance associations
C. ENGINEERING FUNCTIONS	
In planning and designing public works structures, adopt standard procedure of considering threat of landslide, and modify structure as necessary.[2]	Dam-building agencies (USCE, DWR, BLM, USBR, USFS), Road-building agencies (DPW)

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Recommended Programs	Recommended Agencies
D. ENHANCING FUNCTIONS	
1. Political and administrative actions.	
a. Provide authority, policy guidance.	
i. Adopt strengthened safety and seismic safety elements in general plan, incorporating improved landslide considerations.[2]	City councils, Boards of Supervisors
ii. Adopt latest, improved version of grading ordinance (see A-4-a, b).[2]	City councils, Boards of Supervisors
b. Provide funds and staff to make land-use plan effective, and to enable zoning and grading ordinances to be enforced.[2]	City councils, Boards of Supervisors
2. Coordinated, informational guidance.	
a. Produce model safety element for local general plans, especially as it deals with slope-stability problems.[1]	CIR*, OPR, CDMG, CSAC, LCC, AEG
b. Periodically update model grading ordinance, especially as it deals with landslide problems, with guidance on how it can be applied effectively, including case studies of successful grading ordinance enforcement practice.[2]	ICBO*, CDMG, CIR, CSAC, LCC, AEG, ASCE
c. Assemble and distribute case-studies, and other informational materials on applications of landslide information in environmental impact considerations, including case studies of successful practice.[2]	USGS, CDMG, OPR*, AEG, ASCE, OIM, CIR
d. Produce interpretive publication, alerting and orienting planners and and administrators to the significance and usefulness of geotechnical information on landsliding and on the engineering response, and on its application in land-use planning and decision making.[1]	CDMG*, USGS, AEG, ASCE
E. ENFORCEMENT FUNCTIONS	
1. Administrative follow-through; management control.	
a. Strengthen local government programs and capabilities for effective inspections of grading practices, including requirement of pre-construction geological study of slope stability conditions at site.[1]	City councils, Boards of Supervisors
b. Maintain integrity of zoning and grading ordinances (as they apply to landsliding) in arriving at individual land-use decisions.[2]	City councils, Boards of Supervisors, Appeals Boards
2. Conduct on-site inspections of building sites as necessary to assure that the various actions to prevent damage from landsliding are properly taken, as required by safety regulations, and zoning and grading ordinances.[2]	City and county grading inspectors, Foundation and construction inspectors
3. Public and private lending institutions should require either a geologic report on the stability of structural sites or a policy of landslide insurance prior to the approval of financing in areas subject to landsliding.[1]	FHA, DVA, Private lending institutions
F. EMERGENCY ACTION FUNCTIONS (Rarely applicable)	
G. OVERALL COGNIZANCE AND COORDINATION FUNCTIONS	
The status of landslide hazards in California should be determined and reported upon annually by the appropriate State agency or agencies. Landsliding should be included among the geologic hazards to be considered by the successor body to the GEC and JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, p. 55).[1]	CDMG*, MGB

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Recommended Programs

IV. FLOODING

The natural causes and processes of flooding lie mainly in the fields of weather science and hydrologic engineering, largely outside the field of strictly geotechnical science, so are treated only generally in the Urban Geology Master Plan. On the other hand, the methods and responsibilities for reducing life and property losses from flooding are similar in many respects to those for several of the other geologic problems included in this study. The magnitude of expectable flooding losses—$6.5 billion by 2000, fourth among the 10 geologic problems considered in this study—justifies further consideration of all feasible loss-reduction actions.

It is recommended that the Department of Water Resources, in coordination with other State, federal, and local agencies, make an assessment of existing flood damage prevention measures, future needs, and programs to meet the needs. Loss reduction measures which should be considered include:

- Weather research.
- Hydrologic research.
- Flood zone mapping, at various scales.
- Consistent, complete socio-economic data on flood damage.
- Improved design and construction practice for dams, levees, weirs.
- Improved public information, especially about "drainage problems" (local flooding).
- Flood information clearinghouse, statewide.
- Flood zone ordinances.
- Flood insurance policy and practice.
- Flood-zone construction building practices and practices.
- Traditional government policies regarding emergency flood grants, low-cost recovery loans, tax breaks.
- Standards for feasibility studies prior to authorizing flood control works (e.g. Framework Study Program).
- Indemnification of flood-zone landowners for reduced land use capability under more restrictive flood-zone regulations.
- Model language to permit inclusion of flood and drainage problems in general plan, safety elements.
- Measures for enforcing flood zone regulations.
- Standards for "floodproof" construction.
- Guidance for local governments to include flooding and drainage problems in their emergency-response planning.
- Provision for ongoing top-level coordination, coordination of all measures to reduce losses from flooding.
- Public purchase of flood-prone areas for open space and park land in lieu of construction of flood-control works.

V. EROSION ACTIVITY

Recommended Programs	Recommended Agencies
A. DATA DEVELOPMENT FUNCTIONS	
1. **Develop research data on erosion**	
a. Research into technical, scientific processes that cause or affect erosion.	
i. The geologic processes that contribute to erosion are relatively well known and do not warrant high priority research programs. The erosion and sedimentation problems that accompany flooding, landsliding, and volcanic events should be considered during research in those problems.[1]	Appropriate research agencies
ii. Coastal erosion processes are more specialized and require research into basic processes and factors aimed at prevention and control measures, especially in urban areas.[1]	USGS, USCE*, DNOD, CDMG, Universities
iii. The many factors that contribute to erosion problems of surficial geologic units under various conditions, and their relationships, should be identified and listed for systematic application in studies of erosion problems in California, including local government planning projects.[1]	SCS
b. Extend inventory of knowledge about erosion in California, including coastal erosion. Those types of soils and rock units that are especially susceptible to erosion under natural, undisturbed conditions should be mapped and described throughout California, and especially in areas subject to coastal erosion.	SCS*, USCE*

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[2] Expansion of 1972 programs
[3] Continue program at 1973 level

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Recommended Programs	Recommended Agencies
i. Statewide compilation scale (1:250,000–1:1,000,000).[1]	SCS*, USCE*
ii. County/regional scale (1:62,500–1:125,000).[2]	SCS*, USCE*
iii. Detail or quadrangle scale, especially in coastal erosion areas (1:12,000–1:24,000).[2]	SCS*, USCE*
iv. Project scale mapping, for land-use permit decisions or construction purposes (1:1200–1:12,000).[2]	Consultants for local governments, Developers
c. Develop socio-economic analysis information.	
i. Develop a standard procedure for collecting erosion-loss figures separate from landslide and flooding loss figures.[1]	SCS
ii. Collect and compile reliable figures (per A.c.i) on losses due to erosion, and the costs of erosion preventive and remedial measures, for standard reporting areas and periods.[1]	Local government
d. Research into engineering response to erosion. Standard engineering practice and state of the art, in predicting erosion danger and in devising measures to control it, is effective and should be applied without exception, considering erosion caused by construction projects, and ongoing erosion in adjacent areas that threatens those projects.[3]	Universities, AEG, ASCE
2. **Information-dissemination program.**	
a. General public information.	
Produce an updated, interpretive general purpose primer discussing California's erosion problems as geological hazards. Emphasize the geotechnical nature of the problem, related factors, what can and should be done to reduce losses, and what all this means to the urban area in general, and the homeowner in particular.[3]	SCS*, USDA
b. Information clearinghouse, data bank program.	
Improve present information handling capability and procedures and establish regular ongoing function as clearinghouse for all information about erosion in California.[3]	SCS
B. PLANNING FUNCTIONS	
1. **Land-use planning**	
a. Erosion-prone conditions of the undisturbed surface are rarely threatening enough to influence land-use planning. However, procedures for dealing with those rare situations in which an important erosion threat is inherent in local surficial conditions should be made known to all planners.[3]	SCS*, CIR, OPR, AIP, LOC, CRAC, AEG
b. Procedures should be developed for dealing with land use implications of erosion of coastal cliffs and near-shore features, and model language provided to all planning agencies.[1]	OPR, CIR*, USCE, AIP, LOC, CRAC, USGS, CDMG, AEG
2. **Recovery planning**	
a. Include erosion-damage loss among the geologic losses covered by recommended broad-coverage natural disaster insurance program.[1]	FIA*, DI*, FHA, DVA, Insurance industry
C. ENGINEERING FUNCTIONS	
1. Make erosion prevention and control considerations part of design and construction practice for drainage works (e.g., storm drains, culverts, bypass or overflow channels).[3]	Public works agencies, all levels of government, Contractors
2. Plan, design, and build coastal erosion control structures (e.g., seawalls,	USCE*, DNOD

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Recommended Programs	Recommended Agencies
groins, revetments) that have been determined to be necessary and feasible.[8]	
D. ENABLING FUNCTIONS	
1. Adopt improved land use plans, grading ordinances, and building codes that incorporate model provisions for dealing with erosion, and provide sufficient funds to carry out work programs.[7]	City councils, Boards of Supervisors
2. Improve guidelines and models for proper consideration of erosion in grading ordinances and building codes; include model procedures for enforcing the ordinances and codes; include considerations of potential erosion damage in environmental impact procedures.[7]	CIR*, OPR, SCS, ASCE, AEG
E. ENFORCEMENT FUNCTIONS	
Carry out inspection procedures relative to erosion problems, to enforce compliance with building codes and grading ordinances.[7]	City and county building and grading department inspectors
F. EMERGENCY-RESPONSE FUNCTIONS (Not applicable)	
G. OVERALL COGNIZANCE AND COORDINATION	
The status of erosion problems in California should be determined and reported upon annually by the appropriate State agency or agencies. Erosion activity should be included among the geologic hazards to be considered by the successor body to the GEC and JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, p. 55)	(body to be established)

VI. EXPANSIVE SOILS

The Subdivision Map Act requires that soils reports be made before subdivisions are approved unless the requirement is waived by local government. Soils reports include detection of expansive soils so that proper action can be taken. The measures that practically eliminate danger of structural damages in expansive soils are relatively inexpensive, well known, and reliable. As long as local officials are adequately funded and diligent in requiring that the soils report information be used properly, losses due to expansive soils can be minimized.

Detailed recommendations of programs to reduce losses from expansive soils are unnecessary in the Urban Geology Master Plan.

VII. FAULT DISPLACEMENT

The recommendations of the Governor's Earthquake Council to reduce losses from seismic events (GEC, 1972) also cover losses from fault displacement.

Likewise, the work of the Joint Committee on Seismic Safety of the California Legislature to generate legislative and other actions to reduce losses from seismic events will also cover losses from fault displacement.

In 1972, Chapter 7.5, the Alquist-Priolo Geologic Hazard Zones Act, proposed by the JCSS, was added to Division 2 of the Public Resources Code. Its purpose is to establish policies and criteria to assist cities, counties, and state agencies in providing for public safety in hazardous fault zones. In 1973, special studies zones are being delineated to encompass potentially hazardous faults in California by the State Geologist. By December 31, 1973,

[7] Expansion of 1972 programs
[8] Continue program at 1972 level
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Recommended Programs	Recommended Agencies
the State Mining and Geology Board will have developed policies and criteria to be used in approving all proposed new real estate developments or structures for human occupancy to be placed in the designated special studies zones. Rather than duplicate these efforts, the Urban Geology Master Plan refers to the publications of the GEC, JCSS, and the Alquist-Priolo Act project and endorses their recommendations and procedures.	

VIII. VOLCANIC HAZARDS

A. DATA DEVELOPMENT FUNCTIONS	
1. Research programs to develop data on volcanic hazard phenomena	
a. Field and laboratory research in geotechnical processes involved in volcanism and the forms of volcanic phenomena that occur in California. Apply results of volcanic research conducted outside California in reducing potential volcanic losses in the state. Develop procedures and instruments necessary for a volcanic warning system.[7]	USGS*, Universities, CDMG
b. Update and refine maps and text descriptions of potential volcanic hazard areas in California. Develop data on probable recurrence and projected damage levels, wherever damage is possible.[7]	CDMG, USGS, Universities, DWR, National Weather Service
i. Statewide scale: update as feasible (1:250,000–1:1,000,000)[1]	CDMG
ii. County/regional scale program (1:62,500–1:125,000)[1]	CDMG, USGS*
iii. Detail or quadrangle scale program (1:12,000–1:24,000)[1]	CDMG*, USGS, Universities, All agencies
c. Gather socio-economic information and analyses. Develop standard procedure for gathering consistent and meaningful data on volcanic hazard losses. Whenever volcanic events occur, gather and analyze the necessary socio-economic data.[1]	Local government, All agencies, Universities
d. Whenever volcanic eruptions occur in California or nearby states, study site and surrounding region to understand the processes involved and to improve capability for predicting that type of event.[1]	CDMG, USGS*, Universities
2. Information dissemination programs	
Prepare and distribute basic educational materials about volcanic hazards in general, emphasizing local and regional applications and what local residents should know and do about them.[7]	CDMG*, USGS
Establish a clearinghouse and data-bank program for information on volcanic hazards.[1]	CDMG*, USGS
B. PLANNING PROGRAMS	
1. Land-use planning. Volcanic hazards in California occur primarily in rural areas where land-custody agencies and utilities should consider the threat in their land-use plans.[1]	BLM, USFS, USBR, SCS, DWR, SLD
2. Long-range recovery planning. Extend natural disaster insurance program to cover damage from volcanic phenomena.[7]	DI*, FAIR, FIA*, Insurance industry

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[7] Expansion of 1972 programs
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Recommended Programs	Recommended Agencies
C. ENGINEERING FUNCTIONS	
In designing dams downdrainage from possible volcanic mudflows or within potential ash fall region, consider possible ways to protect vulnerable parts (intakes, generators, valves) from potential volcanic debris.[1]	Dam building agencies DWR, USCE, USBR, USFS, SCS, Power companies PG & E, DWP, MWD, SCE
D. ENABLING FUNCTIONS	
Produce handbook for planners and administrators to make them fully aware of volcanic hazards and their implications for land use planning, and how to apply available geotechnical and other information on the subject.[1]	CDMG, USGS*
E. ENFORCEMENT FUNCTIONS (Not applicable)	
F. EMERGENCY-ACTION FUNCTIONS	
Include volcanic hazards among the natural dangers considered by all emergency-action plans in areas that are potentially vulnerable to this threat.[1]	OEP, OES*, DCPA, USGS, CDMG, Cities, Counties, Utilities, Law enforcement (All agencies concerned with disaster planning)
G. OVERALL COGNIZANCE AND COORDINATION	
The status of volcanic hazards in California should be determined and reported upon annually by the appropriate State agency or agencies. Volcanic hazards should be included among the geologic hazards to be considered by the successor body to the GEC and JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, p. 55).[1]	USGS, CDMG*

IX. TSUNAMI HAZARDS

Recommended Programs	Recommended Agencies
A. DATA DEVELOPMENT FUNCTIONS	
1. **Research programs to develop data on tsunamis**	
a. Research into geologic and seismic processes and bathymetric and coastal configurations that cause or affect seismic sea waves	
i. Investigate the geologic and seismic processes involved in the generation and transmission of seismic sea waves. Aim is to develop capability to reduce damage from them, and to improve capability to predict them.[2]	NOAA*, USGS, ONR, Universities
ii. Survey and analyze the coastal shelf of California, to define and understand the relationship of bathymetric and coastal configurations to tsunami effects on the coastline. Analyze the relationship of local detail of bottom configuration to expectable local tsunami damage.[2]	USCE, NOAA*, USGS, ONR, DNOD, Universities
iii. Conduct field and laboratory investigations of seiche processes, and other wave-resonance phenomena to evaluate potential for seiche damage at vulnerable points of California's coast and interior lakes and reservoirs.[1]	USCE, NOAA*, USGS, ONR, USBR, DWR, Universities
iv. Establish a system of reliable tide gages specifically to detect and measure tsunami and seiche waves. Instruments must measure minor as well as major events and remain operable in calamitous events.[2]	NOAA*, ONR, USCE, Universities

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Recommended Programs	Recommended Agencies
v. Correlate tsunami-generation research with fault-displacement and seismic research in the Channel Islands area. Develop means for predicting, or at least detecting swiftly, the kinds of fault movement there that could repeat the monstrous sea waves that reportedly overran the Channel Coast in 1812.[1]	NOAA*, Universities, USGS, CDMG
b. **Distribution of seismic sea wave problems**	
i. Gather complete historic record of tsunamis and seiches that have been detected in California. Analyze historic and newly occurring seiches to determine probable recurrence rates of events of varying severity at vulnerable locations.[2]	NOAA*, USGS, Universities, DNOD, DWR
ii. Prepare tsunami/seiche hazard map of California, using historic data and bottom configuration analysis data	CDMG
Compilation scale program (1:250,000–1:1,000,000) Update, improve detail on CDMG map (1:1,000,000, July 1972, figure 8, this report).[2]	NOAA*, USGS, USCE, DNOD, CDMG
County/regional scale program (1:62,500–1:125,000) Emphasize threats for which local government should prepare.[2]	NOAA, USGS*, USCE, CDMG, DWR, DNOD, County consultants
Detail or quadrangle scale program (1:12,000–1:24,000) Delineate in detail conditions of threat at those localities facing appreciable threat.[1]	NOAA, DWR, Local government* (consultants)
Project-scale mapping, for land use permit decisions or construction purposes (1" = 100' to 1" = 1,000'). Delineate past and possible future runup areas, and depths. Indicate topographic factors that could divert waves and surges. Relate to expectable variations in tide and sea-state conditions.[1]	Local government (consultants)
c. **Develop socio-economic information and analyses**	
i. Develop standard procedure, for local government use, for gathering complete and consistent socio-economic data on the costs of seismic sea waves, including costs of damage and of preventive or remedial measures.[1]	Universities, NOAA, USGS, CIE*, DNOD, USCE
ii. Produce reliable statistical data on seismic sea-wave costs (per procedure i-c-i above) both for past events, by analyzing historical data, and for each new event that occurs.[1]	Local government, NOAA*, USGS, CDMG, DNOD, USCE
d. **Research into engineering response to tsunamis**	
i. Investigate behavior of waterfront structures, such as channels, breakwaters and seawalls, wharves, and mooring basins, in response to tsunami experience in California and elsewhere. Develop standards for "tsunami proofing" typical waterfront structures.[1]	AIA, USCE*, ICBO, DNOD ASCE, ONR, USCG
ii. Investigate means of preventing or controlling runup and other expectable sea wave and seiche effects, or at least reducing damage, by building structures (e.g., seawalls, groins).[2]	USCE*, DNOD, DWR
e. **Event-study projects**	
i. Whenever a tsunami causes damage to California, conduct detailed study of the nature of the wave itself, and its effects and damage to protective structures. Analyze the performance of utilitarian structures for their resistance to that event, and analyze wave-control structures for their effectiveness in reducing damage from that event.[2]	NOAA, USCE*, ASCE, Universities, ONR, USCG, DNOD, AEG

[1] Essentially a new program
[2] Expansion of 1972 programs
[3] Continue program at 1972 level

* = Lead or co-lead agency

Bold face type = Major recommendations of Urban Geology Master Plan

Recommended Programs	Recommended Agencies
ii. After event, analyze effectiveness of the event study procedures, instrumentation, and other detection and response measures.[2]	All event-study agencies
2. Information-dissemination programs	
a. Produce basic public information on tsunami processes and their importance for California. Aim for schools, government officials, and broad public audience. Include What to expect from tsunamis and how to survive them.[2]	CDMG*, USGS, NOAA, USCG, DNOD
b. Devise clearinghouse and data bank program for all information on seismic sea waves.[2]	NOAA* All tsunami information-producing agencies. All tsunami information-using agencies.
B. PLANNING FUNCTIONS	
1. Land-use planning.	
a. Produce interpretive general-use manual to apprise planners of sea wave hazards in general, and of vulnerable localities in particular. Describe the potential dangers and possible land-use planning actions to reduce losses, including standards for exclusion zones, permissible activities, and "tsunami-proof" construction. List the available maps, materials, and services, and describe their applications.[1]	NOAA, USGS, AIP, CIR*, DNOD, CDMG (information)
b. Adopt standards and procedures for the land-use planning process that require adequate consideration of tsunami and seiche hazards. Revise general plans as necessary to incorporate effective model of seismic sea wave hazard element (within seismic safety element), employing current state of the art.[1]	City and county planning departments, Regional government, Land custody agencies: SLD, DPR, BLM
2. Recovery planning	
Extend natural disaster insurance program to cover seismic sea wave damage.[1]	DI*, FAIR, FIA*, Insurance industry
C. ENGINEERING FUNCTIONS	
1. If and when feasibility studies prove them to be desirable, build local sea-wave control structures (sea-walls, breakwaters, diversion levees) to stop or divert water surges, and reduce casualties and damage to onshore facilities and structures, and shipping.[2]	USCE*, DNOD, Harbor and port districts
2. Apply "tsunami-proof" design and construction principles to structures that need to be in zones threatened by sea waves so they can be removed or made impervious to tsunami damage on short notice.[1]	USCE*, DNOD, Harbor and port districts, Shipping and sea-front industries
D. ENABLING FUNCTIONS	
1. Political and administrative actions	
a. Provide authority and policy guidance. Adopt tsunami and seiche provisions in local government land use plans (general plan) and adopt zoning and other ordinances and regulations necessary for implementation.[2]	City councils, Boards of Supervisors, Land-custody agencies, Utility agencies
b. Provide resources. Approve funding and manpower to carry out inspections, reviews, and other actions required to accomplish the purposes of the plans, codes, ordinances and regulations.[1]	City councils, Boards of Supervisors, Land-custody agencies, Utility agencies
2. Coordinative, information guidelines	
a. Produce guidelines for treating sea-wave danger in the seismic safety element of general plans, including model language.[1]	CIR*, OPR, CDMG (information)

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[2] Expansion of 1972 programs
[3] Continue program at 1972 level

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Recommended Programs	Recommended Agencies
b. Produce model "Sea-wave hazard zone" ordinance, and procedure for enforcing it.[1]	OPR*, CIR, AIP
c. Develop guidelines and interpretive information on the effects of sea-wave hazards on environmental impact decisions.[1]	OPR*, CIR, EPA, OIM
E. ENFORCEMENT FUNCTIONS	
1. Executive and administrative control	
a. Apply appropriate safety principles in approving construction and use permits in areas subject to seismic sea waves.[1]	Local government Planning commissions, City councils, Boards of Supervisors
b. After a realistic deadline, require that specified actions to reduce tsunami losses be effectively taken by local jurisdictions in coastal areas before granting further funds to those jurisdictions for coastal studies, coastal planning and related activities.[1]	Funds-dispensing agencies HUD*, CIR, NSF, OEP, OES
2. Operational inspection	
a. Inspect construction and other developments in locations subject to seismic sea wave hazards as necessary to assure compliance with safety regulations, and zoning, grading, and building ordinances.[1]	Local government grading, foundation, and construction inspectors, Land-custody agencies, Utility agencies
3. Insurance organizations should require evidence that seismic sea-wave dangers have been properly considered and loss-reduction measures taken before insuring structures in tsunami hazard areas.[2]	Insurance companies, Board of Underwriters
4. Construction and development loans should not be approved for structures in tsunami hazard areas until lending institutions are assured that proper damage avoidance or prevention action will be taken.[1]	FHA*, DVA*, Lending organizations
F. EMERGENCY-RESPONSE FUNCTION	
1. Provide overall guidelines and coordination to help local governments and land-custodial agencies cope with tsunami emergencies. Develop and disseminate guidelines for local governments and land-custody agencies on the use of the federal Seismic Sea Wave Warning System in disaster-readiness procedures. Include guidelines for tsunami preparedness measures.[1]	NOAA, USGS, OEP, OES*, DCPA, AIP, ARC
2. Develop contingency plans	
a. Include consideration of seismic sea wave and seiche hazards in emergency planning procedures of local governments, land-custody agencies, and public utility type agencies; produce elements of emergency response plans that properly prepare to cope with these hazards.[1]	OES*, CIR, OPR, LCC, CSAC, Local government emergency-planning agencies: Police, Fire, Sheriff; Communications media, including private sector
b. Adopt emergency-response plans, and carry out the pre-event preparations called for therein.[2]	City councils, Boards of Supervisors, Land-custody agencies, Utility agencies
3. When tsunamis occur, activate contingency plans.[2]	All agencies

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[2] Expansion of 1972 programs
[3] Continue program at 1972 level

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Recommended Programs	Recommended Agencies
G. OVERALL COGNIZANCE AND COORDINATION FUNCTIONS	
The status of tsunami hazards in California should be determined and reported upon annually by the appropriate State agency or agencies. Tsunamis should be included among the geologic hazards to be considered by the successor body to the GEC and JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, p. 55)[1]	(body to be established)
X. SUBSIDENCE	
A. DATA FUNCTIONS	
1. Research programs to develop data on subsidence	
a. Basic research into processes that cause or influence subsidence in California. Develop capacity to predict where and how severe subsidence will be under various types of use. Devise and improve ways to prevent subsidence, ameliorate damage from it, and to detect it in incipient stages[2]	USGS*, DWR*, Universities, SCS, CDOG*, Oil and gas industry, Geothermal industry
b. Map and describe areas of actual and potential subsidence in California.	USGS*, CDOG*, CDMG, SCS, DWR*
i. Statewide compilation scale (1:250,000–1:1,000,000)[3]	DWR*, CDMG, USGS*
ii. County/regional scale (1:62,500–1:125,000)[3]	CDMG, DWR*, USGS*, CDOG*
iii. Detail or quadrangle scale especially in areas of groundwater withdrawal and potential hydrocompaction (1:12,000–1:24,000)[3]	DWR*, CDOG*, USGS*, SLD
2. Data-dissemination programs	
a. Produce and disseminate educational information on subsidence for general public use, emphasizing regional and local occurrences[2]	DWR*, CDMG, USGS, CDOG*, Education agencies, Mass media
b. Establish clearinghouse and data bank functions for all subsidence data and information of use in California[2]	DWR*, CDMG, CDOG*, USGS, All data-producing agencies, All data-using agencies
c. Socio-economic analysis research. Develop procedures and gather data, in consistent units and format, for evaluating losses due to subsidence, and the costs of loss-reduction measures. One aim is to determine where subsidence is actually damaging, and damage costs[2]	Universities (economics depts.), CDOG*, DWR*, USGS*, Cities, Counties, Land-custody agencies
d. Research into engineering response to subsidence	
i. Continue to investigate the response behavior of local surficial materials in subsidence prone localities to various types of construction, so that structures can be located and designed to avoid damage.[3]	USGS*, DWR*, AEG, ICBO, ASCE, SRAOC
ii. Investigate design and construction standards for foundations (including site preparation) and for structures to be placed in localities subject to subsidence, including public utility and industrial structures[2]	ICBO*, ASCE, SRAOC
e. Event-study research. Continue to investigate known subsidence situations, with the aim of determining the cost-effectiveness of loss-reduction measures[2]	DWR*, USGS*, CDOG*, Oil and gas industry, ASCE, AEG, Universities

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[2] Expansion of 1972 programs
[3] Continue program at 1973 level

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Recommended Programs	Recommended Agencies
B. PLANNING FUNCTIONS	
1. Land-use planning. Prepare handbook for planners interpreting what is known of the process and local detail of subsidence in terms of its impact for land-use planning procedures. The handbook should develop effective procedures, including model language, for incorporating pertinent subsidence hazard information into the land use planning procedures of local governments and land-custody agencies. It should consider the subsidence threat in relation to use capability of land, zoning procedures, and conditions to be imposed on development or use, in effect, incorporating subsidence consideration, when appropriate, into the geologic hazards considered in the preparation of safety elements of general plans[2]	DWR, CDMG, USGS, OPR, CIB*, LOC, CRAC, CDOG, City and county planning departments
In areas undergoing, or subject to, subsidence, prepare or improve the provisions of general plans that deal with subsidence hazards[2]	City and county planning departments
2. Recovery planning. Develop procedure and practice of including subsidence among the geologic hazards covered under a natural disaster, broad-coverage insurance program[1]	FIA*, DF*
C. ENGINEERING FUNCTIONS	
Specialized engineering works for dealing with subsidence include injection/repressuring well systems at some oil or geothermal fields, sea-control dikes in some water front lowlands, special pilings, foundation extensions, and anti-submersion provisions for fixed activities in some coastal lowlands, special preparations necessary for developing spreading grounds for groundwater recharge, and canal-level adjustment provisions for some canal-route subsidence localities.	
The agencies responsible for designing, constructing, and monitoring the performance of these structures should continue to review the effectiveness and feasibility of each installation and compare these factors with those for alternate methods of reducing subsidence losses, in terms of local costs and benefits, both short and long-term[2]	DWR, CDOG, USBR, USCE, Cities, Counties, Special districts
D. ENABLING FUNCTIONS	
Authority and responsibility for oil field and geothermal field-related subsidence are sufficient to deal with the problem once it is recognized. Groundwater withdrawal subsidence is part of the major problem of groundwater basin management, which requires comprehensive concern for water quality and quantity. Except for water quality control efforts under the Porter-Cologne Act, controls on groundwater removal in California are exercised only by a few local governments without direct State control.	
Hydrocompaction and peat soil subsidence, as essentially surficial problems, are coped with in various degrees by the owners of the local surface rights without direct control by government at any level.	
E. ENFORCEMENT FUNCTIONS (Not applicable)	
F. EMERGENCY-RESPONSE FUNCTIONS (Not applicable)	
G. OVERALL COGNIZANCE AND COORDINATION FUNCTIONS	
The status of subsidence problems in California should be determined and reported upon annually by the appropriate State agency or agencies. Subsidence should be included among the geologic hazards to be considered by the successor body to the GEC and JCSS after June 30, 1974 (Recommendation 26 in GEC, 1972, p. 56)[1]	(body to be established)

[1] Essentially a new program
[2] Expansion of 1972 programs

* = Lead or co-lead agency

The following are from Report to Congress: Disaster Preparedness by the Office of Emergency Preparedness, January 1972.

1. The greatest potential for reducing the loss of life and property from earthquakes lies in restricting the use of land in high-risk areas and in imposing appropriate structural-engineering and materials standards upon both new and existing buildings. The San Fernando earthquake demonstrated the value of the Field Act, since little damage, overall, was sustained by school buildings built to its specifications. However, it was also demonstrated that emergency and other essential facilities, such as hospitals, fire stations, police stations, and power plants, must be built to special safety standards in order to survive seismic disasters.

While primary action in these matters is required of State and local governments, the Federal Government can set an example through its own construction projects and can make its financial assistance contingent upon State and local action. Also needed is a program to translate seismic risk factors into design standards to make new structures in high-risk areas earthquake resistant and to remove or improve structurally unsafe buildings. The approaches to this problem by the State of California and in the City of Long Beach are examples of a beginning to the solution to this problem.

2. The greater use of instruments is essential to increasing knowledge, to providing risk maps, and to developing a theory of prediction—and perhaps control—of earthquakes. In this connection, much can be learned in a general way from the atmospheric sciences, where extensive instrumentation has contributed to our knowledge and ability to predict, and in some instances modify, the weather.

3. The development of seismic risk maps is an essential first step in hazard reduction and preparedness planning. In all high-seismic zones, risk mapping of the faults near populated areas is needed in order to develop specific preparedness programs. It is most important that the results of risk mapping be produced in a simplified form for use by local government officials, planners, and engineers.

4. At this time, the capability does not exist to predict the timing of earthquakes with any significant degree of certainty. Indeed, the question of whether an earthquake prediction and warning capability can be developed is a point of contention among the experts. Nevertheless, there are some possibilities that deserve further close attention and concerted research and experimentation.

5. There is a possibility that earthquakes can be controlled. For example, experiments have shown that it is possible to induce the occurrence of small earthquakes, through the injection of fluids into faults, and thereby release the strain along a fault gradually, rather than letting it build up so that a massive earthquake results when the fault ruptures.

6. The level of earthquake disaster planning in most areas of high seismic risk is not satisfactory. A significant exception is in the San Francisco Bay area, where both the California Legislature and the Federal Government are taking important steps. The California Joint Committee on Seismic Safety is expected to produce a seismic safety plan in 4 years. At the Federal level, OEP's Outline Plan for Federal response to a possible earthquake in the San Francisco area and the OEP-NOAA study of what might happen in the event of an earthquake in that area will be prototypes for similar steps toward improving disaster preparedness. This combined vulnerability analysis and comprehensive planning by the Federal Government could also be a forerunner to State disaster planning envisioned in Section 206 of PL 91-606.

7. The potential catastrophe of a major earthquake in a metropolitan area poses unique protection requirements. In order to ensure the continued availability of vital utilities and services for recovery from the effects of an earthquake, several options should be analyzed: (1) feasibility of better protection for such services and facilities and their locations, (2) to the degree possible, relocation to less-vulnerable perimeter areas, and (3) development of backup systems. The studies mentioned above should be useful in this regard.

8. Public awareness of the threat posed by earthquakes is essential to success in preparing for them and moderating their destructive effects. Every possible means should be used to create and maintain this awareness: including coverage by the news media; the distribution in simple, convenient form of facts about earthquake hazards and emergency response check lists; and orientation and training sessions.

9. The capability to mount effective search and rescue operations in an earthquake disaster is marginal. As evident from the San Fernando case, there is a need for readily available special equipment and special procedures to locate and extricate buried persons.

1. Major flood control projects are, along with appropriate regulation of land use, the most effective means of making significant improvement in flood control. The statutory and regulatory process leading to construction of these projects now averages 18 years from the initial local request to the start of construction. Possible ways to reduce this developmental period are:

- Authorizing the Chief of Engineers to reconsider surveys of major projects that appear to have a high potential for reducing flood losses;
- Revising the procedures for interagency coordination of the survey report to accelerate the coordination process;
- Increasing the $10 million ceiling under which the Public Works Committees may authorize projects by resolution;
- Increasing the $1 million limitation placed on the size of the projects that may be surveyed and recommended for funding by the Chief of Engineers under continuing authorities.

2. Effective regulation of land use is a major means of reducing flood losses. The flood plain management programs of the Corps of Engineers and the Department of Agriculture, which foster land-use regulation by local communities and development of action plans by River Basins Commissions should be pursued to permit communities to comply with the eligibility requirements of the National Flood Insurance Act. Similarly, the joint flood mapping program (Corps of Engineers, National Oceanic and Atmospheric Administration, and U.S. Geological Survey) *should be emphasized, with a capability to permit production of maps on the scale of one inch to 400 feet (1"=400') for urban and urbanizing areas.*

3. The Small Watershed Programs of the Department of Agriculture have not been adequately funded in past years. The funding level of the 1972 budget is, however, considered adequate. *Adequate funding of these programs should be continued, to enhance the beneficial effects on flood abatement as well as on the environment.*

4. Inadequate staffing of the River and Flood Forecast and Warning System of the National Weather Service results in a lack of flood forecast and warning service in some areas of the country and marginal service in others. Further, even where full service is available, it is not as timely as it could be because the River Forecast Centers normally have only a one-shift operational capability. *Consideration should be given to staffing the River Forecast and Warning System as required to expand services to all geographical areas and to ensure that all River Forecast Centers can give extended hours of service when necessary.*

5. The hydrologic data networks of the National Weather Service do not provide adequate coverage and rely mainly on manual reading and reporting of data. Data from many remote areas where floods originate are not available. Increased coverage and automation of the NWS hydrologic networks would ensure more complete and timely data and improve the accuracy and timeliness of flood forecasts. A complete network would be an expansion from 5,500 to 10,000 river and precipitation gauges, with 2,500 gauges automated through the NOAA Geostationary Operational Environmental Satellite (GOES) system and another 2,500 automated using ground communications.

6. Computer service available to some River Forecast Centers is inadequate. Two centers are without computer service and some others must rely on early-generation equipment with limited core memory and slow speed. An improved mathematical hydrologic forecast computer model is now being perfected and, coupled with modern computer systems, should increase the accuracy and timeliness of the forecasts.

7. Current methods for disseminating flood and flash flood forecasts are inadequate to insure positive warning of the general public. The National Weather Wire Service is not available to all areas of the country, and terminal equipment is too costly for many smaller communities and broadcast stations. Commercial telephone and telegraph, as the means to disseminate warnings to individual communities and broadcast stations, are slow and too time consuming for the Weather Service. Neither the National Weather Wire nor commercial wire directly reaches the general public.

The NOAA VHF/FM Radio Transmission service reaches only the limited public segment that has invested in receivers, and the receivers now in use do not have an automatic switch-on capability.

The warning system which a 1971 study, chaired by the Office of Telecommunications Policy, recommended for development and test could provide a capability for dissemination directly to the general public through a home warning device and could also offer an attractive alternative to the National Weather Wire Service. For this reason, extension of the Weather Wire Service should be considered in light of progress in development of this new system.

8. The flash flood prediction and warning program has a limited capability to provide technical assistance in establishing local community systems and lacks qualified personnel in many Weather Service Offices to prepare general forecasts of flash floods. Staffing of the National Weather Service should take into account the desirability of:

- Establishing a two-man flash flood team at each River Forecast Center to provide expertise for setting up community flash flood programs.
- Stationing flash flood prediction specialists at local Weather Service Offices serving areas vulnerable to flash floods.

9. Weather radar surveillance, and associated radar facsimile service, for local Weather Service Offices in many areas prone to flash floods can be significantly improved. Improvements in these aids for flash flood prediction would provide local Weather Service Offices with the capability to issue more definitive warnings and in many instances would obviate delays in ground observer reporting on location and intensity of rainfall. Consideration should be given to:

- Expanding the National Weather Service's radar network by some 25 radar stations and providing remote readout from selected Federal Aviation Administration radar facilities.
- Extending the National Weather Service's radar facsimile network (RAFAX) to local Weather Service Offices in areas vulnerable to flash floods and now without this service.

TSUNAMI

1. Accurate prediction of tsunami arrival time and wave height at any given point in the Pacific Ocean is not feasible at present. There is a need to reduce the time between detection of tsunami waves and the warning of vulnerable areas. Programs for improving prediction and warning, some already underway, include:

- The expansion and modernization of 28 seismographs and 84 tsunami sensors equipped with standardized instruments designed specifically for the detection of tsunamis to provide more complete and reliable information on the generation of tsunamis and on their amplitude and speed (NOAA plan).
- The use of NOAA's Geostationary Operational Environmental Satellite as a communication relay. This would reduce the elapsed time for warning to regional disseminating agencies from an average of 2-2½ hours to about 1 hour. This time saving would reduce the radius of the unwarned area from 1,000 to 400 miles.
- The establishment of a West Coast Regional Tsunami Warning Center, headquartered in San Francisco or Sacramento, to provide more timely warning service for nearly seven million people living in cities susceptible to tsunamis. Adequate warning of locally generated tsunamis cannot be assured from the centers in Honolulu or Palmer, Alaska.
- The initiation of a comprehensive research program to investigate (1) the geologic processes that deform the ocean floor and produce earthquakes, (2) the actual mechanism of tsunami generation, (3) the relationship between earthquake magnitude and tsunami height, (4) methods of tsunami recognition, and (5) methods for predicting wave heights and probable tsunami landfall.

2. The inclusion of tsunami emergency procedures in telephone directories, as done in Oahu, Hawaii, would improve the public response to tsunami warning. These procedures could include information on warning devices and emergency procedures, zones of possible inundation, evacuation routes, and the location of relief centers.

1. Landslides do not represent a major danger to life or loss of property in the United States, except when they occur as secondary effects of earthquakes. Landslide-vulnerable areas are being identified through various Federal and State programs, with more concentrated effort going into areas where highways, railroads, reservoirs, and other extensive structures are located. In these cases, measures can be taken to mitigate the effects of landslides or even to avoid them, but predicting the precise timing of occurrence is not feasible. *Additional basic information is needed from field and laboratory research on the causes and mechanics of landslides. This, in turn, could assist in predicting the time of their occurrence.*

2. The existing landslide data have not been systematically analyzed to provide a national picture. However, in areas such as parts of California, where particularly hazardous slide conditions exist, the problem has been studied in detail and steps have been taken to minimize the effects. *Land-use and construction regulations are potential means to further moderate the adverse effects of landslides.*

3. Consideration should be given to expanding the landslide program of the U.S. Geological Survey, in conjunction with other Federal and State agencies, to encompass:

- Increased effort to identify and classify existing and potential landslide areas throughout the United States;
- Expansion of soil- and rock-mechanics research to develop information on the various basic types of landslides;
- Studies of elements which trigger landslides, such as earthquakes, blasting, change in hydrologic conditions, and heavy storms;
- Development of criteria for proper design methods and construction techniques to cope with landslide problems;
- Establishment of a central source of landslide information nationally.

BEACH EROSION

I. SOUTH CENTRAL REGIONAL COASTAL COMMISSION - GEOLOGY ELEMENT POLICIES, APRIL, 1974 (PROPOSED)

10. Minimal Interference with Natural Processes.

Works constructed to inhibit natural shoreline geologic processes (beach erosion, littoral drift, bluff retreat, and landslides) are often ineffective, unsightly, or result in unintended side effects and restrictions on shoreline use. Protective works that do not serve a general public function should not be constructed to inhibit these processes. In cases where protection of a public-serving facility is required, protective works should be minimal and designed to be unobtrusive and compatible with shoreline use.

a. Shoreline Processes:

The natural shoreline processes of erosion and deposition should not be interfered with due to the potential secondary effects of increased erosion, loss of beach and public and private investments. Shoreline erosion control structures should not be built unless a clear case of public benefit is demonstrated, structures or public investments are in danger of being eliminated, and the sand budget for the shoreline in that area is not negatively affected.

II. SOUTH CENTRAL REGIONAL COASTAL COMMISSION - LAND ELEMENT POLICIES, JUNE, 1974 (PROPOSED)

B. POLICIES:

1. Comprehensive Coastal Stream Management Program.

Because coastal streams provide many functions such as sand replenishment and anadromous fish habitat, and because the natural system and flood control-water conservation projects and beach sand replenishment programs are closely interrelated, regional in nature, and affect the entire California coastline, the planning and management of all new flood control-water diversion projects should be subject to review, modification, and approval, by the agency designated to implement the Coastal Zone Plan. In the public interest, the agency shall consider the environmental costs and benefits in addition to the

economic costs and benefits of each project within the watershed. Where applicable, projects shall provide for anadromous fish runs, a continual sand transport within the streams consistent with Policy No. 9c and d of the Geology Element, and preservation or replacement of any fish, wildlife, or valuable plant habitat affected by the project. Costs of such programs shall be borne by those landowners who will benefit by the project construction.

4. Replenishment of Beach Sands.

Because more than 95% of the sand on the Region's beaches comes from streams, anything that reduces stream velocity impairs beach replenishment. This includes water management devices that regulate stream flow and streambed settling ponds that act as sediment traps.

a. If water management devices such as dams are considered necessary because of high intensity development in the flood plain, then the agency responsible for the flood control project shall also be responsible for maintaining sediment supply to the beach using some alternative mode of transport such as trucking, piping, or the use of conveyors.

b. Open pits within the flood plains and currently being used by mining companies as water retention devices should be filled by the company when the site is evacuated. Until that time, any excess material dredged from the pit or reservoir shall remain available for down-stream transport during a flood flow, rather than be used as landfill.

c. Because lagoons at the mouth of streams retard the movement of sediment from reaching the coast and because existing lagoons are valuable natural resources which would be impaired by additional sedimentation, the Coastal Commission or its successor agency shall investigate methods for sediment to bypass lagoons, thereby enabling such sediment to aid in beach sand replenishment.

II. SAN DIEGO REGIONAL COASTAL COMMISSION - GEOLOGY ELEMENT POLICIES, MAY, 1974 (PROPOSED)

POLICIES

1. State Agency to Administer Shoreline Management Program. Because there is a critical need to protect the shoreline from increasing erosion and because shoreline erosion problems often transcend regional boundaries, the State shall establish a strong and adequately funded comprehensive shoreline management program with planning, implementation and regulatory authority. This program shall be administered by an agency having a broad view of coastal land and water uses and shall be guided by the California Coastal Zone Conservation Plan. The agency shall rely on expertise including, but not limited to, physical oceanography, marine geology, engineering geology, structural engineering, and civil engineering in its operations.

2. Maintenance of Beach Sand Transport. Prior to the design and construction of dams, flood control projects, piers, groins, breakwaters, jetties, and other shoreline structures, thorough sediment transport studies shall be conducted to determine the impact of such projects on beach sand supply to affected beaches. Such structures shall be designed to ensure continued sand transport to and within the littoral cell and the project design agency shall be responsible for maintaining the continued transport of beach sand.

10. Shoreline Land Not Suitable for Development. Where it is determined, based upon thorough geologic study, by the local governmental agency having jurisdiction, that shoreline erosion or existing or potential landslides or probability of inundation render a shoreline site unsuitable for development, no buildings shall be permitted on such sites. If such sites are privately owned and if the owner approves, development rights or fee rights on such sites should be purchased through a state funded program administered by a state shoreline management agency. The costs to local government of the required geologic studies shall be reimbursed from the State General Fund.

IV. SAN DIEGO REGIONAL COASTAL COMMISSION - LAND ELEMENT POLICIES, JUNE, 1974 (PROPOSED)

B. Policies

1. Comprehensive Coastal Stream Review Agency. Because coastal streams perform many functions necessary for the preservation of the coastal environment, the use of and development within coastal stream flood plains shall be subject to review, modification and/or cancellation by the agency(ies) designated to implement the California Coastal Zone Plan. Examples of such uses subject to review include water management and flood control devices, streambed mining operations, and development within flood plains.

2. Comprehensive Coastal Stream Management Plan. Because the entire course of a stream from the head of the watershed to the coastline is a single system; and because the impacts of flood plain development, flood control projects, and water conservation projects are closely interrelated and regional in nature, an appropriate agency, with regional jurisdiction, shall be designated to comprehensively manage the coastal stream system. The agency shall:

   a) Determine the impact of mining operations on beach replenishment and identify locations where the impact would be minimal.

   b) Investigate methods for sediment to bypass lagoons. In a natural system lagoons eventually fill up with the sediment transported to the river mouth. Since this has a negative impact on beach replenishment and the lagoon ecology, artificial methods for allowing sediment to bypass lagoons should be developed. Because lagoons are an important part of the coastal stream system, the proposed lagoon management plan adopted in the Marine Element should be part of the Coastal Stream Management Plan.)

c) Investigate specific streams to determine the potential for restoring anadromous fish habitats.

d) Monitor sediment buildup behind dams.

e) Prepare a management plan for each coastal stream which ensures continued beach replenishment.

V. VENTURA COUNTY PLANNING DEPARTMENT, VENTURA COUNTY COASTAL STUDY, ACCEPTED BY BOARD OF SUPERVISORS, JUNE, 1974.

Dunes & Beaches

The sloping beach and beach berm are the outer line of defense to absorb wave energy, and dunes are the last zone of defense in absorbing the energy of storm waves that succeed in overtapping the berm. In the continuing march to the sea, we have often ignored and destroyed this protection afforded by nature.

- POLICY That no construction should be permitted which would cause alterations in the sloping beach, beach berm or dunes without careful consideration of the effects onshore.

- POLICY That no sand should be removed from any sloping beach, beach berm or dune areas.

- POLICY That the removal of dune vegetation cover should not be permitted without replacement, since erosion and flattening of the dunes would occur.

- POLICY That consideration be given to the re-establishment, where possible, of dunes on beaches where the dunes have been removed, including the planting of dune vegetation.

Beach Zone

The beach zone is in a constant state of adjustment due to the action of waves, currents, and tides. With changes in the action of these agents seasonally and during storms, the shoreline changes its location, sometimes eroding or receding landward and at other times accreting or advancing seaward. Other longer-term cycles of erosion and accretion occur on shores, especially near inlets, in connection with the intermittent transfer of beach material across the inlet.[12]

- POLICY That no construction should be permitted which would cause changes in wave action or in movement of sand along the shore without careful consideration of the effects onshore.

- POLICY That the analysis of all flood control projects include a determination of the effects on beach sand supplies. The cost of approved projects should include the cost of replacing sand lost.

- POLICY That to deal with beach erosion back land and flood plain use management should be considered as an alternative to engineering measures.

- POLICY That beach erosion studies should concentrate on examing the causes of beach erosion and delineating specific levels of beach erosion hazard areas for use in land use decisions along the coast.

- POLICY That beaches and shorelines in general are unstable, as is shown by the migratory mean high tide line, and development proposals involving their use should be discouraged.

- POLICY That proposals involving use of the shoreline and coastal waters should be carefully examined in terms of sand supply and replenishment, and should be denied if interference with existing coastal processes is demonstrated.

- POLICY That sand, and supply of sand, is a valuable recreation resource and should be protected.

- POLICY That the effects of beach modification and construction near the mean high tide line are not fully understood, and proposals involving their construction and/or maintenance should be reviewed very closely.

- POLICY That proposed uses should be sited and designed in such a manner as to avoid possible public burden as well as loss of life and property in the event of natural hazards such as beach erosion or flooding.

● Issue: Beach Erosion - Last winter's storms and heavy wave action caused considerable beach erosion on Faria and Hobson County Beaches.

- RECOMMENDATION: If repair and corrective action is possible without disturbing other conditions, arrangements should proceed through coordinated efforts of the County, State and Army Corps of Engineers.

ADDITION

VENTURA COUNTY COASTAL STUDY

SPECIFIC RECOMMENDATIONS - Pages 67-68

Beach erosion Control and Beach Management Issues and Recommendations. Should Read: Further discussion with the County Public Works Department has indicated that both the expertise and the funding is available for further studies by staff, in the area of "sand budget" and "sand availability" related to any particular project under discussion, now or in the future. Inasmuch as Public Works possesses the capability to underatake much studies, they should persist in making determinations of imports, and recommendations for change.

It is, therefore, recommended that Public Works set up a program utilizing the expertise and fundings, involving other related agencies, and indicating how beach erosion and sand management problems will be worked out.

V. U.S. ARMY CORPS OF ENGINEERS, SHORE PROTECTION GUIDELINES, 1971

> Sand is a rapidly diminishing natural resource. Although once carried to our shores in abundant supply by streams, rivers and glaciers, cultural development in the watershed areas has progressed to a stage where large areas of our coast now receive little or no sand through natural geological processes. Continued cultural development by man in inland areas tends to further reduce erosion of the upland with resulting reduction in sand supply to the shore. It thus becomes apparent that sand must be conserved. This does not mean local hoarding of beach sand at the expense of adjoining areas, but rather the elimination of wasteful practices and the prevention of losses from the shore zone whenever feasible.

VI. STATE OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION, CALIFORNIA COASTLINE PRESERVATION AND RECREATION PLAN, 1971

> Local government must continue to assume the primary responsibility for protecting the quality of the environment. *This will require firm stands by local planning commissions and legislative bodies. Developments should be set back from beach and bluff lines, and should not be allowed to obscure views of long stretches of the coast. These set backs should be especially generous where shoreline erosion is a problem.*

VII. VENTURA COUNTY PLANNING COMMISSION, SHORELINE DEVELOPMENT MASTER PLAN, 1956

19. The water conservation projects are recognized, of course, as matters of prime necessity. All that can be said at this point is to stress the necessity of watching beach conditions in the Oxnard Plain very closely after the Sespe and Piru Creek dams have been built. If the beaches then suffer depletion, erosion will have been begun and the entire Oxnard Plain itself will be threatened. In such an eventuality the problem of protection against beach erosion will have to be approached with other methods.

LIQUEFACTION

These are the recommendations of the U. S. Geological Survey included in Geological Survey Circular 690 by D. R. Nichols and J. M. Buchanan-Banks, Seismic Hazards and Land Use Planning:

GROUND FAILURE

IMPLICATIONS FOR PLANNING AND LAND-USE CONTROLS

General land-use policy might be guided partly by knowledge of broad areas where instability is believed to be so pervasive that, along with other considerations, its preservation as open space or other nonoccupancy, may be indicated. On the other hand, except during earthquakes, such failures generally occur fairly slowly, may be preceded by indicators, and usually do not result in loss of life, even though extensive or complete destruction of property is common. Therefore, the problem might be ignored. Alternatively, since ground failures can be life hazards during earthquakes, areas of known or likely low stability might be designated as geologic hazard zones. In such zones background studies (geologic and soil engineering reports) should be required to demonstrate that both static and dynamic hazardous conditions either do not exist or can be overcome by site preparation work or engineering design prior to approval of subdivision and site development applications. Although individual structures may be sited safely in such areas, roads, gas, water, and sewer lines can seldom be built without crossing unstable areas. Long-term costs in the form of public services may be great and generally must be borne by the entire community.

Other solutions to instability problems that are being pursued include adoption of a program to allow tax deductions for property owners whose land is particularly susceptible to ground failure. Such a program might be designed to alleviate tax burdens on property where existing structures are being damaged and on unimproved land as long as it remains unimproved or until the owner can demonstrate that he has eliminated the hazardous conditions. For those relatively few developed areas where severe instability problems are known to exist and disaster merely awaits the triggering action of an earthquake or an exceptionally wet winter, consideration should be given to the implementation of a hazardous building abatement ordinance or the initiation of nonconforming use procedures.

STRUCTURAL DEFICIENCIES

Source: Meeting the Earthquake Challenge

Final Report to the Legislature

State of California by the Joint

Committee on Seismic Safety

January 1974

Abatement of Hazardous Structures: A Two-Phase Program

Older structures in this State constitute one of the major hazards to life and property because, for the most part, they were not designed to be earthquake resistant. The existing huge inventory of such buildings means that the abatement problem is complicated and its solution costly. Hazard-abatement policies will have to be worked out carefully, with full consideration of their social and economic impact, and other possible consequences. Programs of hazard reduction will have to be scheduled according to a realistic timetable, employing priority systems based on expert evaluation of hazard levels...

1. First Phase: Eliminating the Most Hazardous Buildings

a. Government should require that every building meeting all of the following criteria be inspected, and that after review and analysis, any such building found deficient should be reinforced or demolished no later than six months after the deficiency finding is final:

1) The building was constructed before 1933, or a later designated date. Later dates may be established for specific local jurisdictions, based on an evaluation of each jurisdiction's history with respect to design standards and effectiveness of enforcement. This should probably be done by the proposed State commission on seismic safety.

2) The building lies within a zone designated as probably subject to substantial earthquake shaking. To facilitate administering the hazards reduction program, the zone areas should conform to existing governmental boundaries, and avoid bisecting individual local jurisdictions.

3) The building is of "Type III" construction with load-bearing unreinforced masonry walls using lime mortar, and wood floors and roof.

b. Priorities of building inspection and reviews should be assigned on a block-by-block basis, with buildings of greatest occupancy density receiving highest priority, other factors being equal.

c. A hearing process should be established to facilitate expeditious hazard-abatement proceedings, as well as to guarantee fairness and due process.

d. Building occupancy levels should be considered in making decisions on the priority of abatement. Thus certain high-hazard buildings might be allowed to remain, if only low occupancy levels were involved. Dangerous buildings permitted to remain should be posted with signs clearly stating the degrees of hazard.

e. Special precautions should be taken to insure that occupancy levels in hazardous buildings are not increased.

f. Buildings of historical significance - and that have low occupancy levels - as determined by the appropriate local jurisdiction may also be exempted from hazard abatement procedures.

2. Second Phase: Taking Stock of Less Hazardous Buildings

In the second phase of the program, less hazardous buildings should be identified, or estimates made of their prevalence, location, and degree of hazard posed. This could be done on the basis of existing data, or on the basis of field sampling by competent engineers. The information thus obtained should, in turn, make it possible to estimate the magnitude and cost of the task of hazard reduction, including the number and kinds of personnel needed to carry it out. These estimates would make it possible to carry out the program in realistic stages over a period of many years. The program should also include specific recommendations for financing all of the work that will have to be done.

The following is from

THE SEISMIC SAFETY STUDY
for the General Plan

A report by the Tri-Cities
Citizens Advisory Committee on
Seismic Safety to the Cities of El Cerrito,
Richmond, and San Pablo on Earthquake Hazards
and Recommended Measures to reduce those Hazards.

September 1, 1973

STRUCTURAL ENGINEER'S RECOMMENDATIONS
FOR STRUCTURAL HAZARD REDUCTION

As a result of this study, we can make a series of recommendations for the reduction of earthquake hazards in both existing and new construction. Listed in the priority that we would suggest, they are as follows:

1. Adopt a "parapet" ordinance whereby the existing hazardous parapets must be eliminated or reinforced. This is probably the greatest single cause of life loss in previous American earthquakes and can be instituted with few economic repercussions to the community. The enforcement of such an ordinance should be phased so that areas of high traffic would be corrected first.

2. Perform a more detailed and thorough investigation of all fire stations in the study area including their geological setting. In the section on Firehouses, we note that 6 out of 14 firehouses may have serious deficiencies and may not be operable after an earthquake. Any review should include access roads, utilities, etc.

3. Perform preliminary, but thorough investigation on all of the older public buildings that are essential to relief and emergency operations after a disaster.

4. As required by State Law, replace or reinforce any schools that do not conform to the requirements of the Field Act. Concurrently, review in more detail those schools that are on or near suspected poor foundation materials even though they technically meet the requirements of the Field Act. Subsequently, even the Field Act Schools should have a general review to determine the "minor" hazards of light fixtures, falling ceilings, arcades, book shelves and furniture, etc. If warranted, precautionary measures can be taken then to reduce the effects of those hazards.

5. Adopt the provisions of the 1973 Uniform Building Code when it is available. Examine those provisions to see if Section 2518(f)5 have been corrected. If not, they should be corrected in the new adoptions.

6. Provide for some program of eliminating the so-called "dangerous buildings" - at least the old poorly tied together buildings. This will require some local legislation. Any program should be phased to reduce hardship. Some tax incentives could help this program get started and move faster.

7. Encourage the utilities to continue to participate

in conferences and research on measures to reduce hazard due to utilities in ground that is unstable for various reasons. While they have adopted and are using the best practices now known, this is a field that is receiving considerable study and research due to the failures in the San Fernando earthquake. When better and more reliable methods are found, provide the proper incentives to encourage their use promptly.

8. Review in more detail the situation of apartment houses on concrete stilts (to provide parking) in the light of present knowledge of performance of concrete moment frames in earthquakes. It is entirely possible that a little preventive work now will greatly reduce damage and some hazard in future earthquakes. At present we would not recommend a mandatory program based on legislation, but if the risk is there, we believe many owners and occupants would act if they were informed of the facts.

9. Discuss with the industrial community the probable effects of ground liquefaction on their operations to see if some reasonable method of reducing the consequential effects can be found. While the loss of an isolated or a few industrial plant operations may have little overall effect on the community, damage to a large proportion will have very large repercussions whose impact should be studied and discussed before the event.

The California Department of Conservation's Task Force on California's Wildland Fire Problem's Recommendations:

In the area of **Fire Prevention**, the Task Force recommends that we must:

A1. Provide fire protection standards for local governments to use in preparing the safety element of their general plans.

A2. Devise a formalized "Wildland Fire Hazard Alert" system for alerting and activating wildland fire protection agencies whenever critical fire weather is predicted..

A3. Help solve the incendiarism problem by improving present law enforcement and investigation equipment, adapting equipment available in other fields, and developing new equipment where needed.

A4. Enlist the aid of courts, prosecuting attorneys, and the general public to make present laws more effective in dealing with the problems of illegal use of fire and fire-causing practices.

A5. Suspend all debris burning operations and alert the public to the potential risk for wildfire from any cause during critical fire weather.

A6. Curtail all off-the-road use of machines and mechanical or power-driven equipment during critical fire weather.

A7. Provide fire prevention personnel in numbers that are adequate to properly inspect wildland structures and activities and to make personal contacts with wildland residents and other users, especially during critical fire weather.

A8. Intensify mobile fire prevention patrols immediately before and during critical fire weather.

A9. Improve power line inspections.

A10. Urge all power utility companies to institute special operating instructions for their field personnel during critical fire weather.

A11. Request all power utility companies to make underground installations of relatively low voltage transmission and distribution lines in high fire hazardous areas.

A12. Determine the specific causes and locations of roadside fires.

A13. Establish an ad hoc Fire Prevention Action Committee to coordinate implementation of these fire prevention recommendations.

In the area of **Fuel Management and Hazard Reduction**, the Task Force recommends that we must:

B1. Prepare hazard reduction standards for wildland subdivisions.

B2. Encourage land management agencies to use prescribed burning techniques to selectively reduce fuel hazards consistent with management objectives and laws and with due concern for environmental quality.

B3. Provide standards for locating and constructing fuelbreaks and greenbelts.

B4. Increase the number of men available for building fuelbreaks and other fire control facilities.

B5. Urge fire prevention organizations to give increased emphasis to fuel management and fuel hazard reduction.

B6. Investigate current insurance practices covering prescribed burning operations on privately owned wildlands and determine the fiscal liability of private individuals for costs of suppression and damages in the event of the escape of a prescribed fire.

B7. Determine the legal responsibility of public fire protection agencies for fuel hazard reduction on private lands.

B8. Demonstrate fuel management techniques in high fire hazardous areas.

B9. Implement fuel management programs in the California State Park and Recreation System for fire prevention and hazard reduction purposes.

B10. Urge county road departments to implement fuel hazard reduction programs for all county-maintained roads located in high fire hazardous areas.

B11. Strengthen legal requirements for clearance of hazardous wildland fuels adjacent to structures beyond property lines.

B12. Strengthen research and action programs related to "fire resistant" plants.

B13. Find new ways of controlling brush growth.

B14. Synthesize and summarize all fuel management and hazard reduction information for all wildland vegetative types in California and recommend action programs for each type.

B15. Establish an ad hoc Fuel Management and Hazard Reduction Action Committee to coordinate implementation of these fuel management and hazard reduction recommendations.

In the area of **Zoning, Subdivision Codes and Land Use**, the Task Force recommends that we must:

C1. Provide guidance and technical assistance to local governments in their efforts to integrate a wildland fire protection element into their general plans.

C2. Provide local governmental planning professionals an environmental resource data system and consulting assistance in natural resource protection and management fields.

C3. Require local government to consider land use capability in terms of fire and other natural hazards.

C4. Strengthen the State Planning Law to provide for better wildland use regulations and better fire protection, particularly in regards to "lot splitting" in fire hazardous wildlands.

C5. Make land developers responsible for providing a fuel management program consistent with wildland fire protection requirements in the interim period between individual lot sales and residence construction.

C6. Require that firefighting equipment be provided access to water contained in all privately-owned swimming pools located in or adjacent to the wildlands for onsite fire protection.

C7. Establish an ad hoc Fire Protection in Land Use Planning Action Committee to coordinate implementation of these zoning, subdivision codes, and land use recommendations.

In the area of Building Codes and Construction Material Requirements, the Task Force recommends that we must:

D1. Offer to local governments standards for building location and density in the wildlands.

D2. Require that all buildings constructed in high fire hazardous wildland areas comply with specifications in six specific areas of concern to reduce the chances of wildfire spreading from burning wildland vegetation to the buildings.

D3. Develop standards for numbering buildings located in the wildlands.

D4. Establish an ad hoc Building Construction Action Committee to coordinate implementation of these building code and construction material requirements recommendations.

In the area of Fire Control, the Task Force recommends that we must:

E1. Develop a fire command structure for controlling fire suppression operations on conflagrations spreading through the jurisdictions of several fire protection agencies.

E2. Update the Federal Rural Fire Defense Plan to recognize recent changes in state and federal wildland fire protection legislation.

E3. Update the State Fire Disaster Plan to recognize changing needs and new legislation related to the Office of Emergency Services.

E4. Improve firefighting communications systems to meet multi-agency needs, especially during large fire situations.

E5. Develop new equipment and techniques to increase the effectiveness of the individual firefighter or to replace manpower.

E6. Develop and test new techniques to improve the tactical use of organized firefighting forces, including the use of the modular "Task Force."

E7. Improve the utility of state and federal military forces on conflagration fires.

E8. Provide standards for road construction in the wildlands adequate for fire protection requirements.

E9. Develop standards for water supply required for fire protection in the wildlands.

E10. Establish an ad hoc Fire Control Action Committee to coordinate implementation of these fire control recommendations.

SEISMIC
SAFETY

APPENDIX

GLOSSARY

APPENDIX I

An attempt has been made to define all technical words contained in the text. If a technical word is not defined, often the word can be found in a standard dictionary. In using the glossary, the reader will note that many technical words appear within the definitions themselves. Definitions of these words can also be found in the glossary.

Active faults. Active faults are faults which show evidence of any or all of the following:
1. Topographic or physiographic expressions suggestive of geologically young fault movements.
2. Fault creep.
3. Records of surface rupture within or adjacent to the study area in historic time.

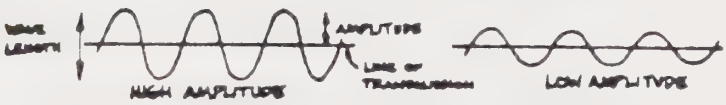
Aggregate. Materials such as sand, gravel, and crushed rock, with which cement or bituminous material is mixed to make concrete or asphalt.

Alluvial fans. Alluvial fans are built by rivers flowing from mountains onto lowlands. They are low cone-shaped heaps, steepest near the mouth of the valley, and sloping gently outward with ever decreasing slope.

Alluvium. A general term for the sediments laid down in river beds, flood plains, lakes, fans at the foot of the mountain slopes, and estuaries during relatively recent geologic times.

Amplification. The increase in earthquake ground motion that may occur to the principal components of seismic waves as they enter and pass through different earth materials.

Amplitude. One-half the elevation of the crest of a wave or ripple above the adjacent troughs:



Anomaly. A deviation or inconsistency of a specific land feature from uniformity with the larger area.

Anomalous features. See "anomaly".

Anticline. An upfold or arch of rock strata formed by internal earth pressure forming a shape like the roof of a house. Erosion could alter this shape leaving only the inclined strata.

Attitude (of rock structures). A term including the terms dip and strike. The attitude of the flat surface of a sedimentary bed, whether inclined or not, is referred to the horizontal plane. Dip is its slope inclination (in degrees) from this plane, and is measured with a clinometer. Strike is the compass bearing on the line of intersection of its surface with horizontal plane. The terms may also apply to faults, veins, and dikes.

Basalt. A dark-colored, fine-grained volcanic rock, composed essentially of the mineral plagioclase feldspar and one or more dark minerals such as pyroxene.

Bed. The smallest division of a stratified series, and marked by a more or less well-defined plane from its neighbors above and below.

Bedding plane. In sedimentary or stratified rocks, the division planes which separate the individual layers, beds or strata.

Bedrock. Any solid rock underlying soil, sand, clay, etc.

Berkeley hills. The hills on the immediate east side of San Francisco Bay contained within such cities as Oakland, Berkeley, El Cerrito and Richmond.

Bore hole. A hole drilled into the earth for exploratory purposes.

Breccia. A rock composed of angular coarse fragments, commonly cemented together

Chert. A compact sedimentary rock containing abundant quarts of organic or precipitated origin.

Clastic rock or Clast. A rock which is composed principally of detritus transported mechanically into its place of deposition.

Cohesion, rock. The capacity of a rock to stick or adhere together. In effect the cohesion of soil or rock is that part of its shear strength which does not depend upon interparticle friction.

Cohesive materials. See "cohesion, rock".

Colluvium. Soil deposited by soil creep, landslides and surface wash.

Compaction. Decrease in volume of sediments, as a result of compression of sediments deposited above them.

Competent beds. Those beds or strata which, because of massiveness or inherent strength, are able to lift not only their own weight but also overlying rock. Therefore, such rock material is especially able to withstand failure such as landsliding.

Conglomerate. A rock composed of larger fragments (such as pebbles or cobbles) set in a matrix of finer material (such as sand, silt, and/or clay).

Consolidated material. Soft or hard rock which requires some medium of loosening at the excavation site before it can be handled. The more loosening required (i.e., blasting as opposed to bulldozing) the more consolidated the material.

Continental rock. A rock unit laid down on land as opposed to one laid down in marine water.

Contra Costa Group. The type of poorly consolidated young sedimentary rock found in the Tri-Cities Area east & north of the Berkeley hills ridgeline.

Creep, fault. See "fault creep".

Cross bedding. The arrangement of narrow layers of sedimentary rock such that layers are at angles to rather than parallel to the other layers.

Damping. A resistance to vibration that causes a progressive reduction of motion with time or distance.

Deformation of rocks. A change in the original form or volume of rock masses produced by faulting, folding or other tectonic forces.

* From "The Seismic Safety Study," (A joint planning study of the Cities of El Cerrito, Richmond and San Pablo, Calif.)

Detritus. The materials that result from the breaking up, disintegration and wearing away of minerals and rocks resulting in alluvial deposits.

Diatomite. A light friable, siliceous material chiefly produced from the remains of minute forms of algae.

Differential Settlement. Loss of strength or the loss of water and sand through liquefaction often does not occur evenly over broad areas. Thus the ground settles different amounts in adjacent spots. Can be very destructive to buildings.

Dip. See "attitude".

Dip slip. Fault displacement parallel to the dip of the fault. See "attitude" and "slip".

Displacement. The dislocation of one side of a fault relative to the other side resulting from fault movement.

Earth-flow. A slow flow of earth lubricated with water. Earth-flows may be discriminated from earth-slumps by reason of their greater mobility.

Earthquake. Perceptible trembling to violent shaking of the ground, produced by sudden displacement of rocks below and at the earth's surface.

Earthquake focus. See "focus".

Earth-slump. See "earth-flow".

Elastic limit. The maximum stress that a material can withstand without undergoing permanent deformation either by solid flow or by rupture.

Elasticity. The property or quality of being elastic, that is, an elastic body returns to its original form or condition after a displacing force is removed.

Eocene. An epoch of the lower Tertiary period. It ranges from 37 to 38 million to 53 to 54 million years before the present.

Epicenter. The geographical location of the point on the surface of the earth that is vertically above the earthquake focus.

Fan, alluvial. See "alluvial fan".

Fault. An earth fracture or zone of fracture along which the rocks on one side have been displaced in relation to those of the other.

Fault block. A body of rock bounded by one or more faults.

Fault creep. Very slow periodic or episodic movement along a fault trace unaccompanied by quakes.

Fault-scarp. The cliff formed by a fault. Most fault scarps have been modified by erosion since faulting.

Fault set. Two or more parallel faults within an area.

Fault slip or slippage. The relative displacement of formerly adjacent points on opposite sides of a fault. Also known as fault creep.

Fault system. Two or more fault sets formed at the same time.

Fault surface. The surface along which dislocation has taken place.

Fault trace. The intersection of a fault and the earth's surface as revealed by dislocation of fences, roads, by ridges and furrows in the ground, etc.

Fault zone. A fault instead of being a single clean fracture, may be a zone hundreds or thousands of feet wide; the fault zone consists of numerous interlacing small faults or a confused zone of gouge, breccia or other material.

Fault, active. See "active fault".

Fault, inactive. See "inactive fault".

Fault, normal. See "normal fault".

Fault, reverse. See "reverse fault".

Fault, right-lateral. See "right-lateral fault".

Fault, thrust. See "thrust fault".

Faulting. The movement which produces relative displacement of adjacent rock masses along a fracture.

Fissure. An extensive crack, break, or fracture in the rocks.

Flexuring. Synonymous with folding.

Focal depth. Depth of an earthquake focus below the ground surface.

Focus. The point within the earth which marks the origin of the elastic waves of an earthquake.

Fold. A bend in rock strata.

Formation. A rock body or an assemblage of rocks which have some character in common, applied to a particular sequence of rocks formed during one epoch; a rock unit used in mapping.

Fracture. Breaks in rocks due to intense faulting or folding.

Free face. A sloping surface exposed to air or water such that there is little or no resistance to lateral movement of earth materials.

Frequency. The number of seismic wave peaks which pass through a point in the ground in a unit of time. Usually measured in cycles per second.

Friable. A term applied to rocks that are easily crumbled or pulverized.

Geodetic measurements. Controls on location (vertical & horizontal) of positions on the earth's surface of a high order of accuracy, usually extended over large areas for surveying and mapping operations.

Geology. The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.

Geophysical surveys. The use of one or more physical techniques to explore earth properties and processes.

Gouge material. Finely ground material occurring between the walls of a fault, the result of grinding movements.

Graywacke. A hard, dark-colored, sandstone composed primarily of highly angular quarts and feldspar in a clay matrix. Usually contains significant quantities of rock fragments.

Ground cracking. Cracks usually occurring in stiff surface materials resulting from differential ground movement.

Ground failure. A situation in which the ground does not hold together such as in landsliding, mud flows, liquefaction and the like.

Ground lurching. Undulating waves in soft saturated ground that may or may not remain after the earthquake.

Ground strength. The limiting stress that ground can withstand without failing by rupture or continuous flow.

Ground response. The reaction of the ground to earthquake shaking.

Group. A local subdivision of a series of rocks, based on lithologic features. It usually contains two or more formations.

Hayward fault. A large and active branch of the San Andreas Fault System. It has been the center of many earthquakes, including the 1868 earthquake which was one of the largest ever to hit Northern California.

Hummocky. Lumpy land, or in small uneven knolls. This condition is a sign of previous extensive landsliding.

Hypocenter That point within the earth which is the center of an earthquake and the origin of its elastic waves.

Inactive faults. Identifiable faults which do not meet any of the criteria listed under "active faults".

Incompetent beds. Opposite of competent beds.

Inelastic deformation. Permanent deformation of materials either by flow, creep, or rupture.

Intensity. (See Table 1) A nonlinear measure of earthquake size at a particular place as determined by its effect on persons, structures, and earth materials. The principal scale used in the United States today is the Modified Mercalli, 1956 version. Intensity is a measure of effects as contrasted with magnitude which is a measure of energy. They are not the same.

Interstitial water. Water contained within the minute pores or spaces between the small grains or other units of rock.

Intrusion. An igneous rock that has been injected into older rocks; it has cooled and solidified from a molten condition under the cover of the surrounding rock mass.

Inundation. Flooding caused by water topping a dam or water released by dam, reservoir, levy or other break.

Isoseismic line. An imaginary line connecting all points on the surface of the earth where an earthquake shock is of the same intensity.

Lacustrine. Formed in a lake.

Landsliding. The perceptible downward sliding or falling of a relatively dry mass of earth, rock, or mixture of the two. Often loosely used to also include sliding of wet earth masses such as mudslides and earthflows.

Left-lateral fault movement. Generally horizontal movement in which the block across the fault from an observer has moved to the left.

Lenticular. Shaped approximately like a double convex lens. When a mass of rock thins out from the center to a thin edge all around, it is said to be lenticular in form.

Liquefaction. A process by which a water saturated sand lens loses coherence when shaken. Involved is the collapse of sand grains into intergranular voids which induces an increase in pore pressure and loss of strength. This loss of strength leads to a quicksand condition in which objects can either sink or float depending on their density.

Lithology. The description of rock composition and texture from observation of hand specimens or outcrops.

Mafic pyroclastic rocks. Pyroclastic rocks containing a high proportion of dark colored (mafic) rock and mineral constituents such as basalt.

Magnitude. The rating of a given earthquake is defined as the logarithm of the maximum amplitude on a seismogram written by an instrument of specified standard type at a distance of 62 miles from the epicenter. It is a measure of the energy released in an earthquake. The zero of the scale is fixed arbitrarily to fit the smallest recorded earthquakes. The scale is open ended but the largest known earthquake magnitudes are near 8-3/4. Because the scale is logarithmic, every upward step of one magnitude unit means a 32 fold increase in energey release. Thus, a magnitude 7 earthquake releases 32 times as much energy as a magnitude 6 earthquake. Magnitude is not the same as intensity.

Melange. A mixture or complex of rocks.

Micro-earthquake. A very small earthquake having a magnitude of 2 or less on the Richter scale.

Microseismic Event. An earthquake or man-induced vibrations observable only with instruments.

Miocene. An epoch of the upper Tertiary period. It ranges from 12 million to 26 million years before the present.

Modified Mercalli. See "intensity".

Monitoring fault movement. Use of survey methods over a period of time to measure displacement caused by creep over a period of time.

Morphology, slope. See "slope morphology."

Mudflow or mudslide. A flowage of heterogeneous debris lubricated with a large amount of water.

Normal fault. Vertical movement along a sloping fault surface in which the block above the fault has moved downward relative to the block below.

Period, natural. See "natural period".

Period, predominant. See "predominant period".

Physiography. A description of existing nature as displayed in the surface arrangement of the globe, its features, atmospheric and oceanic currents, climate, etc.

Plastic deformation. Under some conditions solids may bend instead of shearing or breaking as a result of seismic and geologic forces.

Pliocene. The latest epoch in the Tertiary period. It ranges from 7 to 10 million to 2 to 3 million years before the present.

Ponding. Accumulation of alluvial and colluvial deposits behind a fault-produced barrier.

Precipitate. The material resulting from the process of separating mineral constituents from a solution by evaporation (salt, etc.) or from magma to form igneous rocks.

Predominant period. A number representing the time between seismic wave peaks to which a building on the ground is most vulnerable. Usually measured in seconds.

Pumice. An excessively cellular, glassy lava of whitish or gray color. It is very light and will float on water.

Pyroclastic. A general term for fragmental deposits of volcanic materials, including volcanic conglomerate, agglomerate, tuff and ash.

Remote sensing. The acquisition of information or measurement of some property of an object by a recording device that is not in physical or intimate contact with the object under study. The technique employs such devices as the camera, lasers, infrared and ultraviolet detectors, microwave and radio frequency receivers, radar systems, etc.

Residual soil. A soil deposit formed by the decay of rock in place.

Reverse or thrust fault. Vertical or nearly horizontal movement along a sloping fault surface in which the block above has moved upward or over the block below the fault.

Right-lateral fault movement. Generally horizontal movement in which the block across the fault from an observer has moved to the right.

Sag ponds. Ponds occupying depressions along active faults. The depressions are due to uneven settling of the ground.

Sand boils. Turgid upward flow of water and some sand to the ground surface resulting from increased ground water pressures when saturated cohesionless materials are compacted by earthquake ground vibrations.

Scarp. An escarpment, cliff, or steep slope of some extent along the margin of a plateau, terrace, bench, and at the top of a slide.

Sediment Solid material settled from suspension in a liquid.

Sedimentary rocks. Rocks, commonly stratified, formed by the accumulation of sedimentation in water or from air.

Seismograph. An instrument that writes a permanent continuous record of earth vibrations.

Seismic. Pertaining to an earthquake or earth vibration, including those that are artificially induced.

Seismology. The science of earthquakes and related phenomena.

Seismometer. A device which detects vibrations of the earth, and whose physical constants are known sufficiently for calibration to permit calculation of actual ground motion from the seismograph.

Shear. A mode of failure whereby two adjacent parts of a solid, slide past one another parallel to the plane of contact. To subject a body to shear, similar to the displacement of the cards in a pack relative to one another.

Slip, fault. See "fault slip".

Solid flow. Flow of a solid under long-time stress.

Strata. Layers of sedimentary rocks.

Strength, ground. See "ground strength".

Strike. See "attitude".

Strike-slip. Fault displacement parallel to the strike of the fault. See "attitude" and "slip".

Strong motion. Ground motion produced by a "strong" earthquake or one capable of producing damage to structures. The magnitude of such an earthquake may vary considerably according to the character of the earthquake.

Structural feature. Features produced in the rock by movements after deposition, and commonly after consolidation, of the rock.

Subsidence. A shrinking of a large area of land, usually observed as a shrinkage.

Surface wash. A loose surface deposit of sand, gravel, boulders, etc.

Syncline. A trough-shaped fold in rocks in which the strata dip inward from both sides toward the axis. The opposite of anticline.

Tectonic. Pertaining to or designating the rock structure and external forms resulting from the deformation of the earth's crust. Pressures causing such deformations often result in earthquakes.

Trace, fault. See "fault trace".

Thrust fault. See "reverse fault".

Topography. The physical features of the land, especially its relief and contour.

Torsional forces. Forces which act to twist the object in question.

Tsunami. A sea wave produced by large areal displacements of the ocean bottom, often the result of earthquakes or volcanic activity. Also known as seismic sea waves.

Unconformity. In sedimentary rocks sometimes strata of intermediate age between younger and older rocks are absent. This is usually caused by total erosion of the middle-aged sediment before the younger sediment was deposited.

Unconsolidated material. Opposite of "consolidated material".

Undulating waves. Waves that rise and fall.

Water Table. The upper surface of a zone of water saturation within the ground.

Wash, surface. See "surface wash".

Wave height. The difference in elevation between adjoining wave crests and troughs.

APPENDIX II

OPTIONS MATRIX

The Options Matrix is designed to expand upon the previous offerings by illustrating a methodology for evolving additional options.

Following an assessment of the hazard and determination that some action should be taken, the first step in using the matrix is to identify the resources affected by a hazard and select those which are to be addressed. The second step is to choose an appropriate response to the situation in question. The Matrix offers a range of resources and responses.

Before one can actually formulate an option or recommendation, one must also consider such things as: which hazard zone (high, moderate, low) should be addressed, the use of various qualifiers (all, most, some, etc.) and the time period for implementation. Some examples of recommendations in the form of policy statements derived from the Matrix follow:

> All permanent structures for human habitation located in high hazard zone (within 25 feet of the fault trace of an active fault) shall be removed within ten (10) years.
>
> All property owners within the high and moderate hazard zones shall be notified of the existence and potential extent of the ground shaking hazard within one year of the adoption of this policy.

OPTIONS MATRIX

RESPONSES

	Remove	Prohibit	Limit	Discourage	Inpsect for deficiencies	Up-grade to code	Warn of hazarous condition	Further study	Up-grade code	Review & practice warning plans
RESOURCES										
Structures										
Structures for human habitation										
Multiple dwelling units										
High temporary concentrations of people										
Public buildings and facilities										
Vital public services (police, fire, water, etc.)										
Sensitive facilities (hospitals, resthomes)										
High risk facilities (oil storage, chemical)										

Other Considerations:

1. Qualifiers of Resources: all, some, most,
2. Time period of implementation: immediately, in 6 months,
3. Which hazard zone: high, medium and low.


HAZARDS PLATE
SEISMIC & SAFETY ELEMENTS
RESOURCES PLAN & PROGRAM

FAULT HAZARD ZONES

primary zones which contain faults which have been active during historic or holocene time

secondary zones which may contain active or potentially active faults

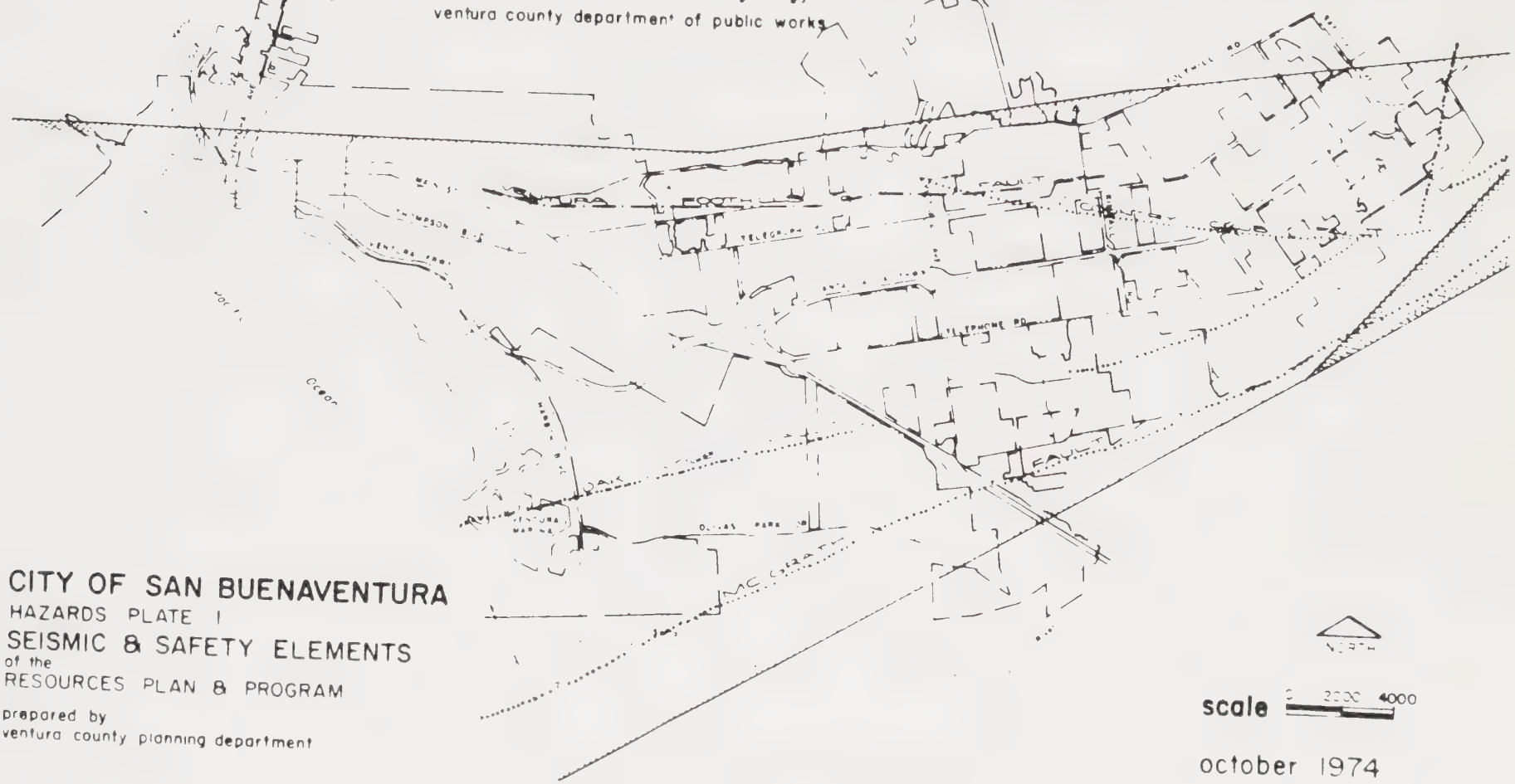
EARTH FAULT

concealed, conjectural where queried faults in areas of offshore submarine sediments are surmised to be concealed

suggested trace as identified on aerial photos, but not verified

note all faults not included in the primary or secondary fault hazard zones — presently considered inactive

Source. california division of mines and geology
ventura county department of public works



CITY OF SAN BUENAVENTURA

HAZARDS PLATE I

SEISMIC & SAFETY ELEMENTS

of the

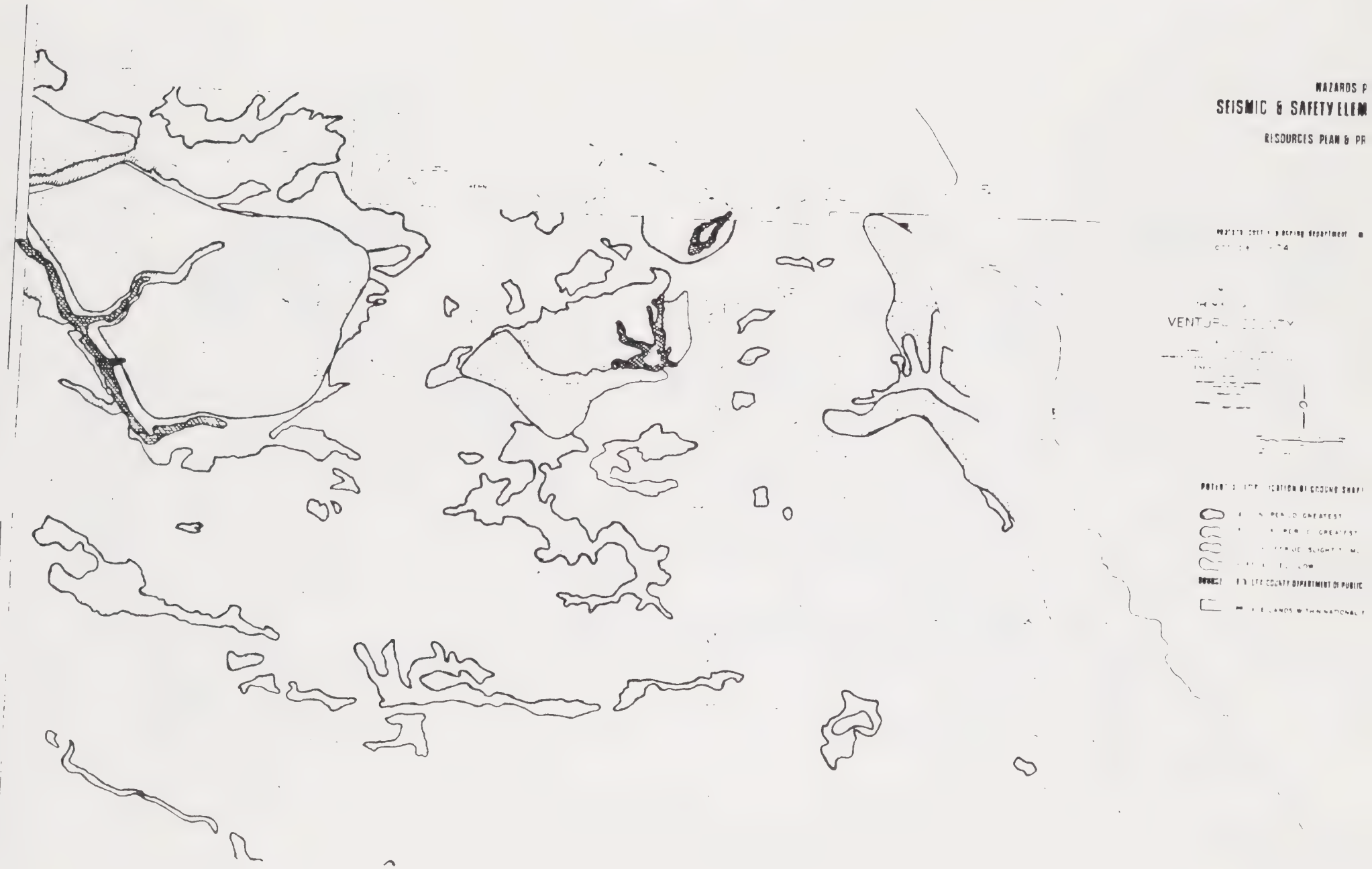
RESOURCES PLAN & PROGRAM

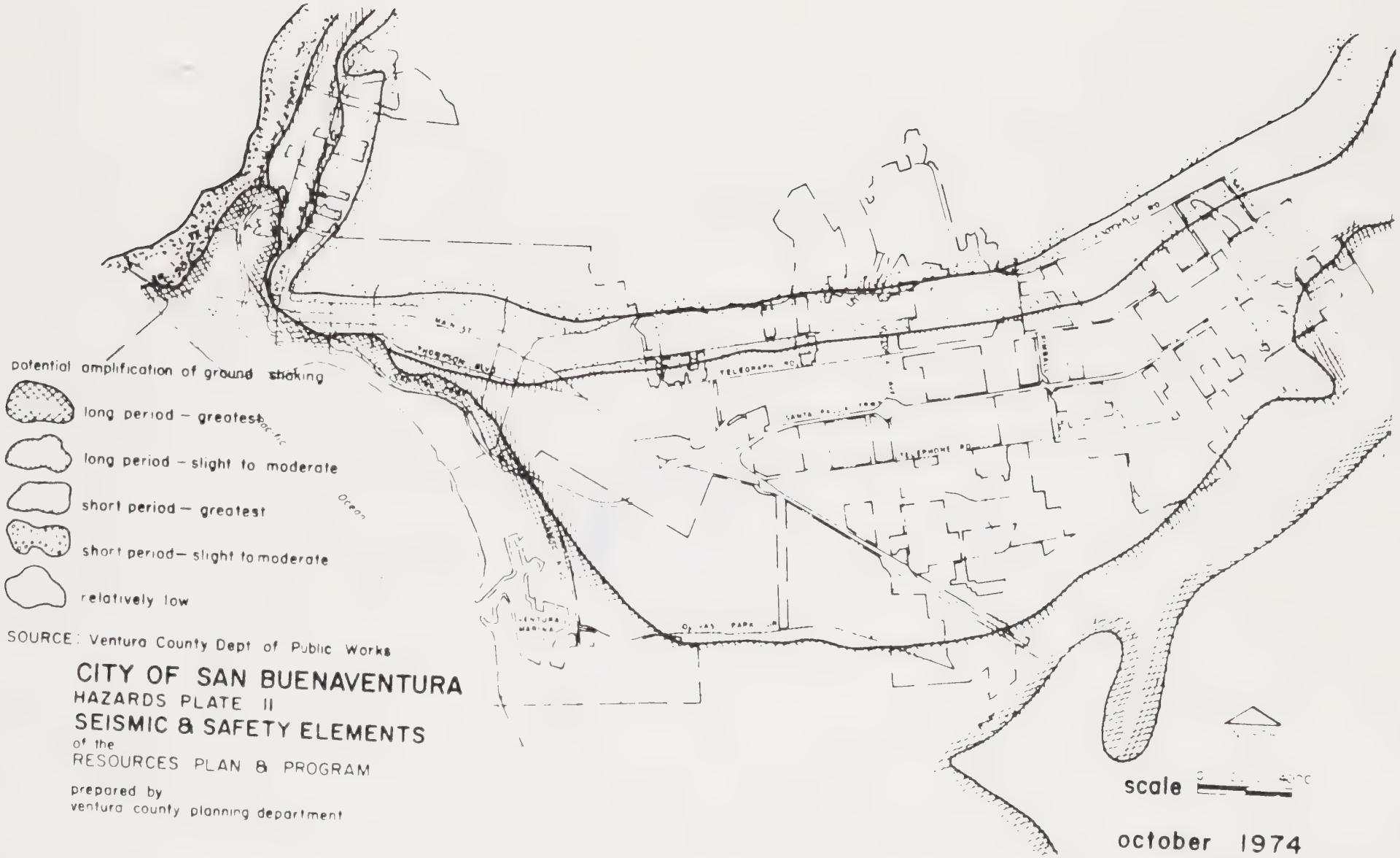
prepared by
ventura county planning department

scale 0 2000 4000

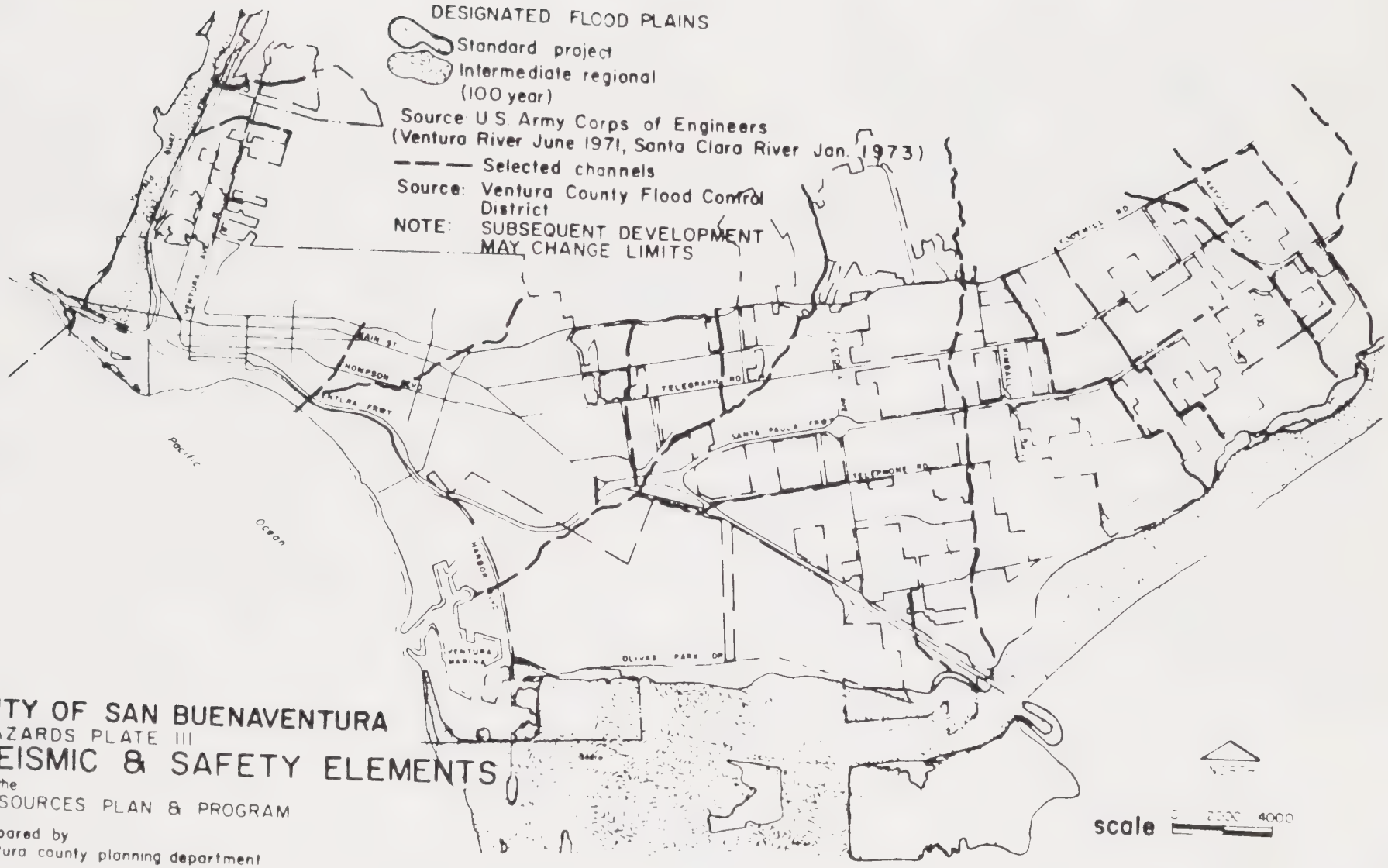
october 1974


POTENTIAL AMPLIFICATION OF GROUND SHAKING
A
B
C
D
E
SOURCE: VENTURA COUNTY DEPARTMENT OF PUBLIC WORKS
HAZARDS PLATE II
SEISMIC & SAFETY ELEMENTS
RESOURCES PLAN & PROGRAM
VENTURA COUN


MAZAROS P
SEISMIC & SAFETY ELEM
RESOURCES PLAN & PR
VENTU
POTENTIAL LOCATION OF GROUND SHAKI
PER CENT GREATEST
PER CENT GREATEST
SLIGHT
LOW
LTA COUNTY DEPARTMENT OF PUBLIC


potential amplification of ground shaking
long period – greatest
long period – slight to moderate
short period – greatest
short period – slight to moderate
relatively low
SOURCE: Ventura County Dept of Public Works
CITY OF SAN BUENAVENTURA
HAZARDS PLATE II
SEISMIC & SAFETY ELEMENTS
of the
RESOURCES PLAN & PROGRAM
prepared by
ventura county planning department
scale
october 1974


HAZARDS PLATE III
SEISMIC & GEOLOGY ELEMENTS
RESOURCES PLAN & PROGRAM
VENTURA COUNTY



CITY OF SAN BUENAVENTURA
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SEISMIC & SAFETY ELEMENTS
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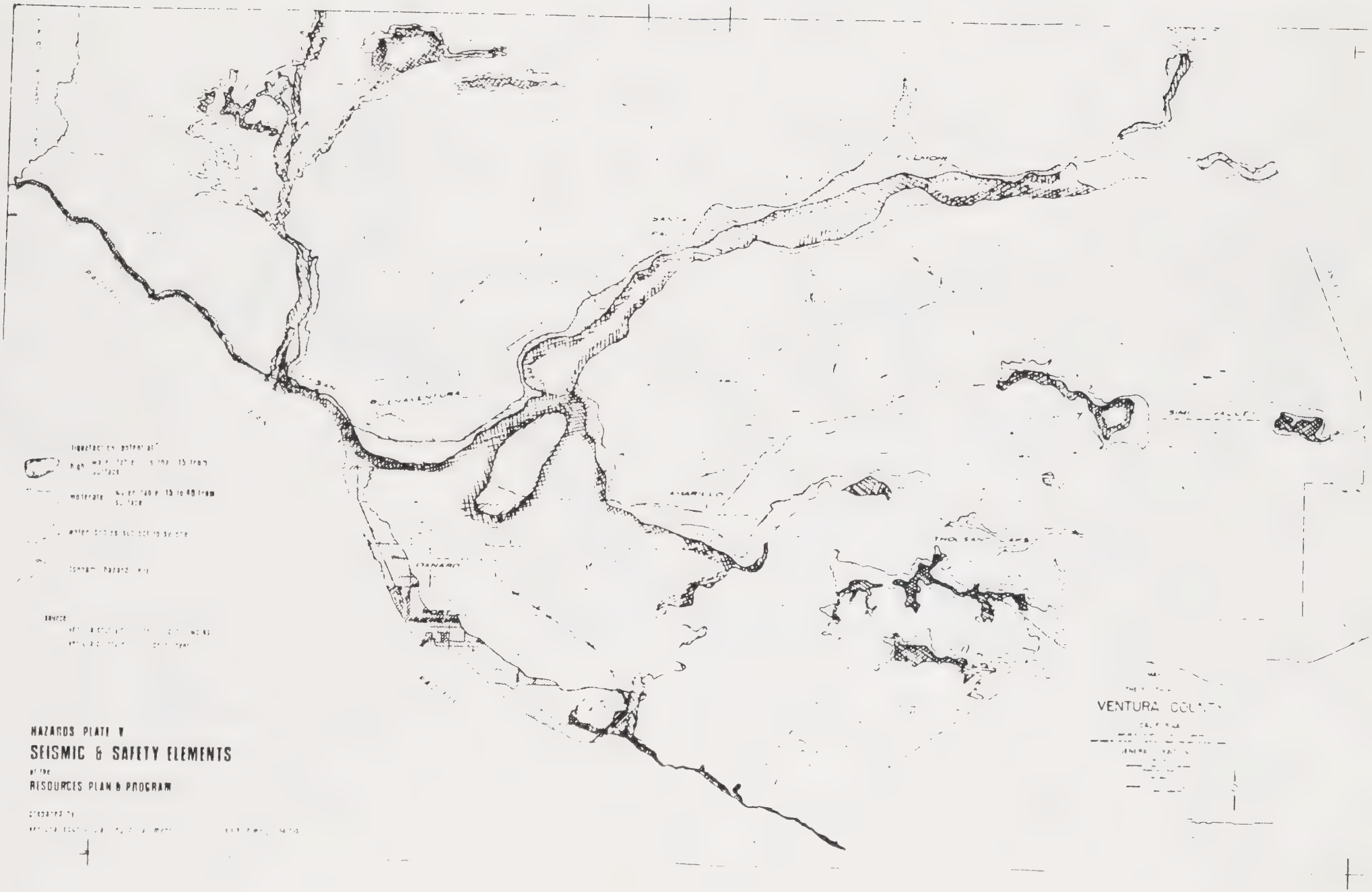
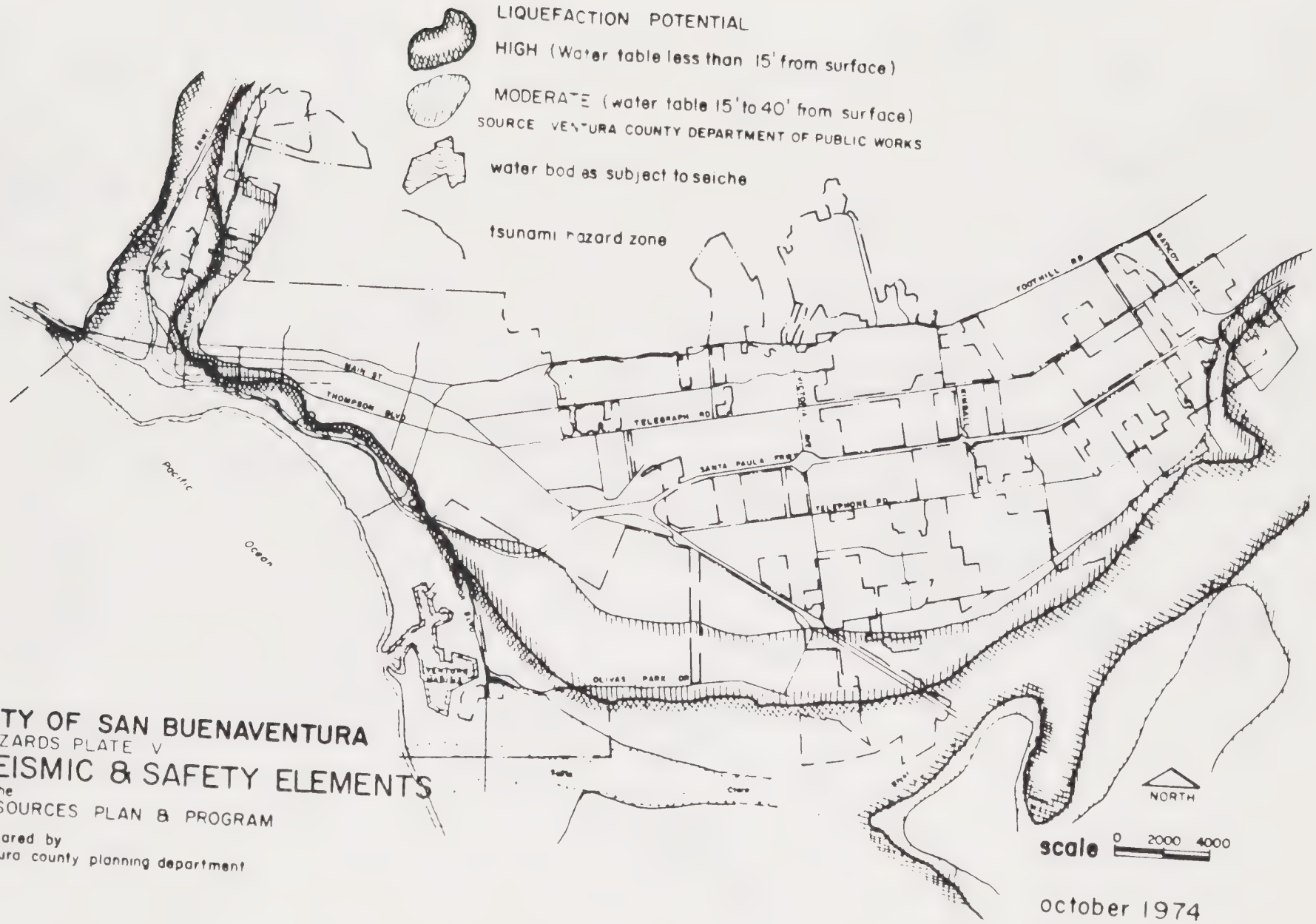
HAZARDS PLATE IV
SEISMIC & SAFETY ELEMENTS
RESOURCE PLAN & PROGRAM
VENTURA COUNTY


existing landslide zone
SOURCE California Division of Mines & Geology
active beach erosion
SOURCE Ventura County Dept of Public Works
LANDSLIDE MUDSLIDE HAZARD ZONES
high
intermediate
little or no
SOURCE: California Division of Mines & Geology
CITY OF SAN BUENAVENTURA
HAZARDS PLATE IV
SEISMIC & SAFETY ELEMENTS
of the
RESOURCES PLAN & PROGRAM
prepared by
ventura county planning department
MAIN ST
THOMPSON BLVD
VENTURA FWY
HARBOR BLVD
VENTURA MARINA
OLIVAS PARK DR
TELEGRAPH RD
TELEPHONE RD
NORTH
scale 0 2000 4000
october, 1974


HAZARDS PLATE V
SEISMIC & SAFETY ELEMENTS
RESOURCES PLAN & PROGRAM
VENTURA COUNTY



CITY OF SAN BUENAVENTURA
HAZARDS PLATE V
SEISMIC & SAFETY ELEMENTS
of the
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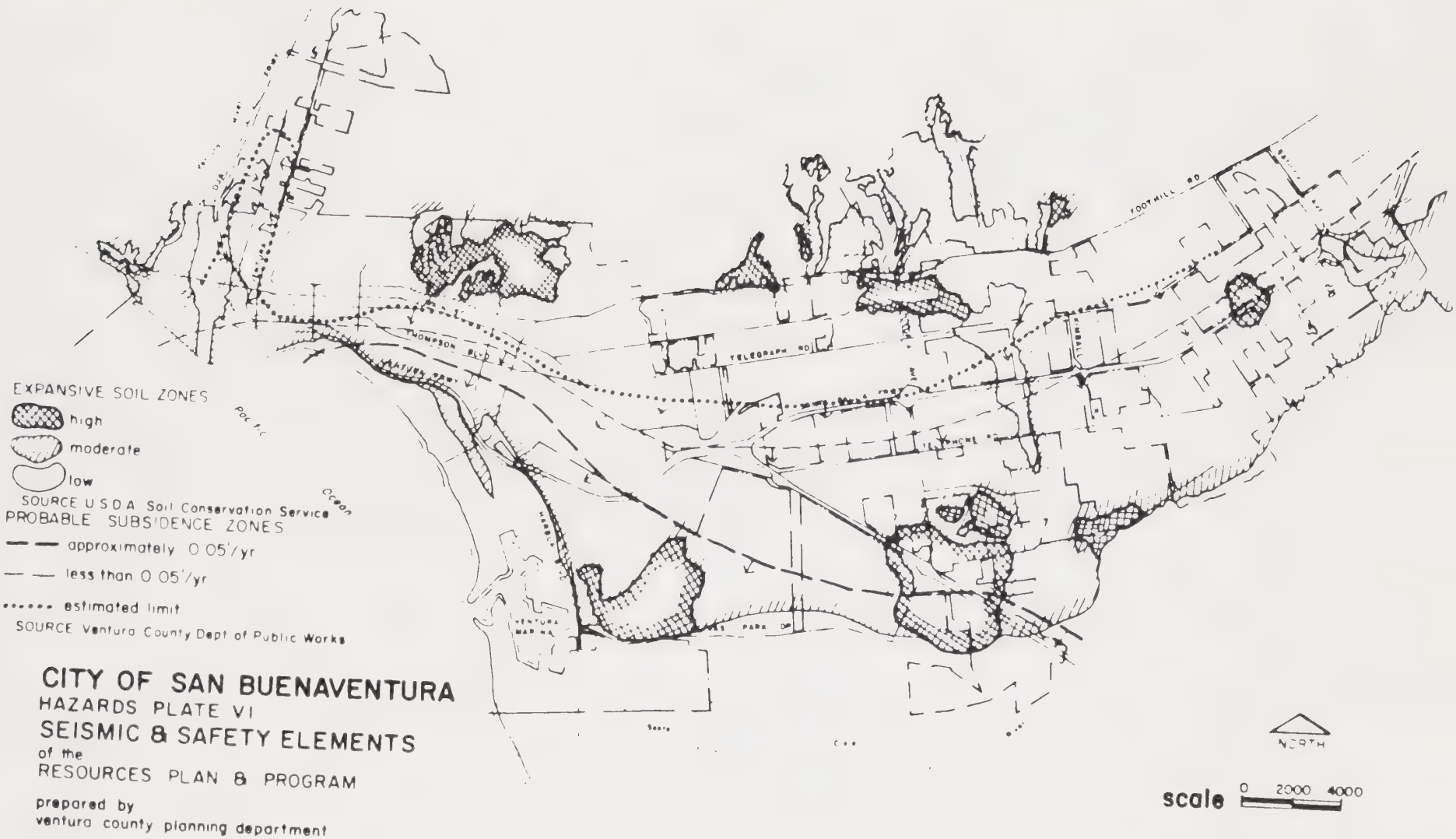
EXPANSIVE SOIL ZONES
high
moderate
low
PROBABLE SUBSIDENCE ZONES
approximately 0.05'/yr
less than 0.05'/yr
estimated limit
HAZARDS PLATE VI
SEISMIC & SAFETY ELEMENTS
of the
RESOURCES PLAN & PROGRAM
VENTURA COUNTY


EXPANSIVE SOIL ZONES
high
moderate
low
SOURCE U S D A Soil Conservation Service
PROBABLE SUBSIDENCE ZONES
approximately 0.05'/yr
less than 0.05'/yr
estimated limit
SOURCE Ventura County Dept of Public Works
CITY OF SAN BUENAVENTURA
HAZARDS PLATE VI
SEISMIC & SAFETY ELEMENTS
of the
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prepared by
ventura county planning department
THOMPSON BLVD
TELEGRAPH RD
FOOTHILL RD
NORTH
scale 0 2000 4000
october, 1974


HAZARDS PLATE 1
SEISMIC & SAFETY ELEMENTS
RESOURCES PLAN & PROGRAM
VENTURA COUNTY

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RESOLUTION NO. 75-45

A RESOLUTION OF THE CITY COUNCIL ADOPTING THE SEISMIC SAFETY AND SAFETY ELEMENT OF THE COMPREHENSIVE PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The Comprehensive Plan Advisory Committee and Planning Commission have presented for Council consideration the Seismic Safety and Safety Element of the City's Comprehensive Plan.

SECTION 2: The Seismic Safety and Safety Element for the Planning Area of the City of San Buenaventura, and the Addendum to Seismic Safety and Safety Technical Report: Evacuation Routes, has been prepared and approved in accordance with State Law so as to identify and appraise seismic hazards and to provide for the protection of the community from fires and geologic hazards.

SECTION 3: The City Council has considered the Element and Addendum in Public Hearing and hereby adopts the Seismic Safety and Safety Element, and Addendum to Seismic Safety and Safety Technical Report: Evacuation Routes, as presented.

Passed and adopted this 24th day of March, 1975.

Barbara C. Kraus
City Clerk

75-45/62

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 24th day of March , 1975, by the following vote:

AYES: Councilmen Kountz, Garrett, Ellison, Laufer and Eaton.

NOES: Councilman McWherter.

ABSENT: Councilman Bozung.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 25th day of March , 1975.

Barbara J. Kam

City Clerk

SCENIC HIGHWAYS ELEMENT

SECTION VII

SCENIC HIGHWAYS ELEMENT

TABLE OF CONTENTS

SCENIC HIGHWAYS ELEMENT

INTRODUCTION

The Scenic Highways Element was adopted by the City Council in 1975. The adopted Scenic Highways Map sets forth scenic highways, drives, streets, and approaches. Guidelines for the delineation and protection of scenic corridors along these routes are included in the Element.

This element was a mandated element but subsequent State legislation has made it an optional element.

STATE SCENIC HIGHWAYS

The Scenic Highways Element has its origins in a report entitled, A Plan for Scenic Highways in California which was adopted by the State Legislature in 1963. Senate bills 1467 and 1468 were subsequently passed, formally creating the State Scenic Highway System. This legislation outlined the State's interest in preserving scenic values along highways, created the Master Plan of Scenic Highways, and established the mechanism for officially designating state scenic highways.

In 1972, Section 65302 of the California Government Code was amended to include a Scenic Highways Plan as a MANDATORY ELEMENT of the general plans of cities and counties. The Code requires the Element for "...the development, establishment, and protection of scenic highways."

While the emphasis is upon protecting state highways, the responsibility for such protection is placed upon the local jurisdictions through which these highways pass. The State Master Plan of Scenic Highways specifies which state routes should be considered for ultimate scenic highway designation and has outlined minimum standards for protecting these highways. They are (1) regulation of adjacent land use and intensity of development; (2) detailed land and site planning; (3) control of outdoor advertising; (4) careful attention to and control of earthmoving and landscaping; and (5) the design and appearance of structures and equipment.

It is apparent that there is an integral relationship between the mandatory Scenic Highways Element and the State's Scenic Highway Program, but despite this interrelationship, it must be understood that the State Scenic Highway Program

is voluntary and that adoption of the Scenic Highways Element does not commit the City to the State program.

STATE SCENIC HIGHWAY PROGRAM

The following is the State Scenic Highway Program as stated in the Government Code.

Chapter 2 - The State Highway System

Article 2.5 - The State Scenic Highway
Added by Chapter 1788, Statutes 1963
Heading amended by Chapter 1352, Statutes 1969

Legislative Intent

260. It is the intent of the Legislature in designating certain portions of state highway system as state scenic highways to establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the state highway system which, together with the adjacent scenic corridors, require special scenic conservation treatment. It is further declared to be the intent of the Legislature in designating such scenic highways to assign responsibility for the development of such scenic highways and for the establishment and application of specific planning and design standards and procedures appropriate thereto and to indicate, in broad statement terms, the locations and extent of routes and areas requiring continuing and careful coordination of planning, design, construction, and regulation of land use and development, by State and local agencies as appropriate, to protect the social and economic values provided by the State's scenic resources.

Planning and Design Standards

261. The department shall, with the advice of the Scenic Highway Advisory Committee, establish and apply pertinent planning and design standards for development of official scenic highways.

In establishing and applying such standards for, and undertaking the development of, official scenic highways, the department shall take into consideration the concept of the "complete highway", which is a highway which incorporated not only safety, utility, and economy but also beauty. The department shall also take into consideration in establishing such standards that, in a "complete highway", pleasing appearance is a consideration in the planning and design process. In the development of official scenic highways, the department shall give special attention both to the impact of the highway on the landscape and to the highway's

visual appearance. The standards for official scenic highways shall also require that local governmental agencies have taken such action as may be necessary to protect the scenic appearance of the scenic corridor, the bank of land generally adjacent to the highway right-of-way, including, but not limited to (1) regulation of land use and intensity (density) of development; (2) detailed land and site planning; (3) control of outdoor advertising; (4) careful attention to and control of earthmoving and landscaping; and (5) the design and appearance of structures and equipment.

Amended by Chapter 1352, Statutes 1969

Designation of Scenic Highways

262. Whenever the department determines that the corridor protection program for any state highway in the state scenic highway system established by this article has been implemented by local governmental agencies and a plan and program has been developed by the department for bringing such highway up to the standards for official scenic highways established by the department, including the concept of the "complete highway", as described in Section 261, the department shall designate the highway as an official state scenic highway and shall so indicate the highway in any publications of the department or in any maps which are issued by the department to the public.

The department shall cause appropriate signs to be placed and maintained along the portions of the state scenic highway system which the department has designated as official state scenic highways that indicate that the highways are official state scenic highways.

If at any time the department, with the advice of the Scenic Highway Advisory Committee, determines that the corridor protection program of local government agencies with respect to any highway which has been designated as an official state scenic highway no longer adequately carries out responsibility of the local governmental agencies for the protection of the scenic corridor, it may revoke the designation of the highway as an official state scenic highway and remove the signs which so indicate the highway.

Amended by Chapter 1352, Statutes 1969

The Scenic Highway System

263. The state scenic highway system is hereby established and shall be composed of the highways specified in this article.

Repealed and added by Chapter 282, Statutes 1968; urgency measure, in effect June 11, 1968.

The state scenic highway system shall include:

(Routes contained within Ventura County)

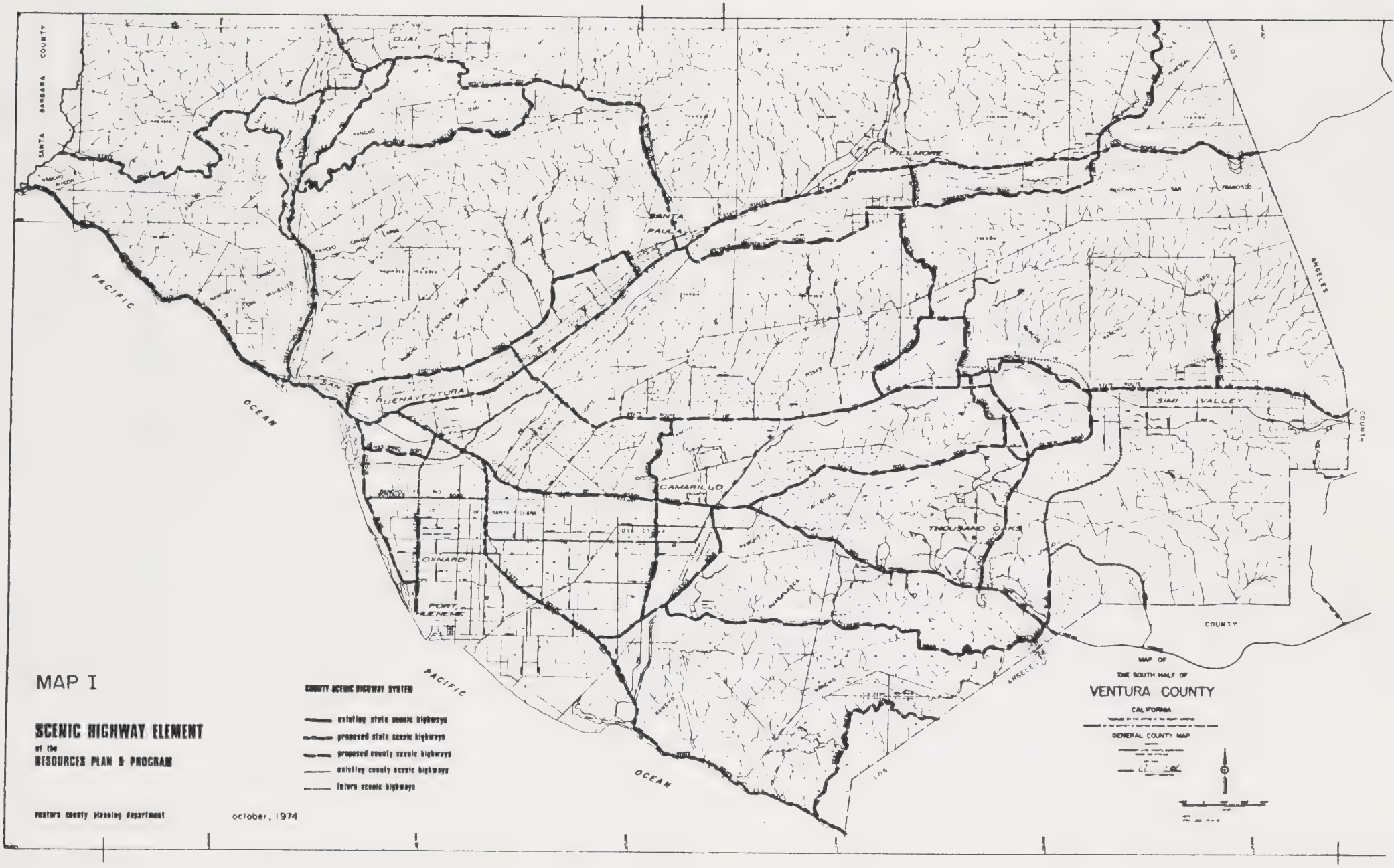
Route 1 from Route 187 near Santa Monica to Route 101 near El Rio

Route 33	from Route 101 near Ventura to Route 150 and from Route 150 to Route 166 in the Cuyama Valley
Route 101	from Route 1 near El Rio to Route 46 near Paso Robles
Route 118	from Route 23 to DeSoto Avenue near Brown's Canyon
Route 126	from Route 150 near Santa Paula to Route 5 near Castaic
Route 150	in its entirety

COUNTY ACTIONS IN REGARD TO SCENIC HIGHWAYS

In order to have an integrated system of scenic highways on a county-wide scale, the County has created a backbone system around which local jurisdictions may establish their own systems. Cooperative efforts between the City and County staffs during the past months have led to the development of proposed City and County scenic highway systems which overlap and mutually complement each other. As depicted in Map 1, the County system is made up of state, county and city routes and is intended to represent a commonly agreed upon series of routes which deserve scenic highway status. The County proposes that each city adopt the portion of the system within its sphere of influence so that the entire system may serve as a basis for a coordinated scenic highway program.

The accompanying map depicts the adopted County Scenic Highway System and the State Scenic Highway System which is a part of it. The routes in the State System are designated as "existing" or "proposed State Scenic Highways", depending upon whether or not they have received official designation. The other routes in the County System are designated "existing" or "proposed County Scenic Highways". A third route classification is "future" and refers to routes which are expected to be developed in the future. Together these routes comprise the County Scenic Highway System.


MAP I
SCENIC HIGHWAY ELEMENT
of the
RESOURCES PLAN & PROGRAM
ventura county planning department
october, 1974
COUNTY SCENIC HIGHWAY SYSTEM
existing state scenic highways
proposed state scenic highways
proposed county scenic highways
existing county scenic highways
future scenic highways
MAP OF
THE SOUTH HALF OF
VENTURA COUNTY
CALIFORNIA
GENERAL COUNTY MAP
SANTA BARBARA COUNTY
LOS ANGELES COUNTY
PACIFIC OCEAN
OJAI
FILLMORE
SANTA PAULA
SAN BUENAVENTURA
CAMARILLO
OXNARD
PORT HUENEME
THOUSAND OAKS
SIMI VALLEY

The State's system, which is incorporated in the county-wide system, was developed by a citizens advisory committee, aided by the State's selection criteria. The remaining routes in the proposed County System were selected by the Ventura County Association of Governments (VCAG) General Plan Elements Policy Advisory Committee after reviewing selection criteria. "Future" routes were taken from the County Circulation Element and include only those routes which were expected to be completed by 1990.

The County System does not replace the State's system, but rather incorporates it into a more extensive regional scenic highway system. The creation of a county-wide system is not intended to supersede local scenic highway systems developed by the various cities. Instead, it is designed to be a framework within which local systems can be developed and coordinated.

The selection of routes for the County System should not be confused with the establishment of a scenic highway program. The State has a specific program for the routes in the State Scenic Highway System. If a local jurisdiction (either city or county) wishes to participate in this program, it must meet certain standards outlined in the State's program.

The following were the criteria used by the VCAG General Plan Elements Policy Advisory Committee in the selection of the County routes. Included in the listing are criteria suggested by the State Division of Highways. It must be remembered that these criteria were used as a guide only and were in no way intended to be the final definition of what is "scenic".

SELECTION CRITERIA

1. The scenic corridor through which the highway passes should have consistent scenic, historic or aesthetic value during all seasons.

2. Consideration should be given those highways or routes which are:

a. State or jurisdictional entry routes
b. Predominately utilized for recreation or vacation travel
c. Utilized for one-day sightseeing or study trips
d. A part of an integrated, or semi-integrated scenic route system that traverses varied scenic corridors for longer trips, and/or
e. Through areas of extraordinary scenic value
f. Typical or demonstrative of varied scenic factors available within the jurisdiction

3. If possible, all principal landscape and topographical type areas should be represented in the system.

4. Routes of historic significance which connect places of interest should be considered even though the route is of marginal scenic value.

5. The number of times a route has been suggested as a scenic highway in other plans and studies.

6. The degree to which a route can be integrated into a system of "loops" or continuous scenic drives.

7. Whether a route connects the scenic highway systems of adjoining jurisdictions.

8. The general attractiveness of the route, including the variety and diversity of its viewscape.

9. The extent to which the route supports other General Plan elements or plans, such as the Open Space Conservation, Recreation, Circulation, Bicycle, and Parks Plans.

10. The extent to which the route traverses representative samples of County's various environs, whether natural or man-made.

11. The amount of traffic on the route.

12. The degree to which the route was thought to be a leisurely drive.

13. The attractiveness of the highway as viewed from other areas of the corridor.

URBAN SCENIC HIGHWAYS

Traditionally scenic highways have been thought of as being used primarily for recreational purposes such as drives through the countryside. The concept of the scenic highway has changed in that a large portion of California's population spends most of their driving time in an urban setting when driving

to work, to school, to shopping or wherever else they may have to go. The new concept states that views from streets and highways can be delightful experiences and that the roadscape need not be boring or chaotic.

San Buenaventura is in a particularly favorable position to take advantage of this urban concept for scenic highways. The scenic qualities of the City's hillsides and the view of the Pacific Ocean are acknowledged assets of San Buenaventura. One of the City's approved Goals is to "Create a visually pleasing city that is compatible with the optimum environmental values of residents and the needs of visitors." The street is really one of the neglected opportunities in improving City design. There are existing areas along the City's streets and highways which are, to many, unattractive, but this need not remain that way forever. A coordinated scenic highways program cannot only protect existing aesthetics but upgrade the deteriorated areas.

PREVIOUS CITY ACTION

In August of 1973, the City staff prepared a technical report entitled, "Volume IV Circulation and Scenic Highways Element". This report was reviewed by the Comprehensive Plan Advisory Committee and provided the framework for the development of the Objectives of the Circulation and Scenic Highways Element. CPAC approved thirteen objectives dealing with Circulation and Scenic Highways on September 5, 1973. These objectives were not sent to the Planning Commission and City Council for the reason that the objectives did not speak to the full range of circulation problems. We recognize that most of the Circulation Element was tied directly to the Land Use Element and that it could not adequately be treated before the Land Use Element had been developed.

Some of the thirteen objectives prepared by CPAC spoke to areas of circulation that were not directly tied to Land Use Planning. Two of the major achievements of these objectives were the development of a Select System of Bikeways within the City and the adoption of the following objectives which speak to the Scenic Highways System.

Objective 5: "To adopt as part of the Circulation and Scenic Highways Element the Scenic Highways, Scenic Drives and Scenic Approaches Map which will serve as a guide for landscaping improvements and special land use controls."

An explanation was attached to the above objective which stated: "Adoption of the Scenic Highways, Scenic Drives and Scenic Approaches Map should complement the Ventura County Scenic Highways Program, as well as add new dimensions to the unique and outstanding aesthetic character of the community by introducing scenic drives and scenic approaches. The Architectural Review Board, Planning Commission and City Council would be requested to review alternative standards and criteria for scenic drives, as well as to select landscaping treatment deemed most desirable for the City's scenic approaches."

Objective 6: "To develop a pilot scenic approach to the community at the U.S. 101 (Ventura Freeway), the southerly entry into the community."

Explanation: "The U.S. 101 bridge over the Santa Clara River is the most frequently used entry point into the community. It is suggested that this entryway area receive the highest priority for implementation of a pilot scenic approach into San Buenaventura."

APPROVED SCENIC HIGHWAYS - SCENIC DRIVES AND SCENIC APPROACHES MAP

Map II (see attached) represents the Map approved by CPAC in 1973 with the following exceptions: First, the street designation for proposed City Scenic Corridors has been changed to proposed City Scenic Streets. This was done to avoid confusion with the State Division of Highway's technical term "scenic corridor". The second difference is that the Santa Paula Freeway has been changed from a proposed State Scenic Highway to a proposed County Scenic Highway. This was done in order to have the City's plan in conformance with the County's Scenic Highways Element. There is not any substantive difference in the change of designation of the freeway; it would only make a difference if the City wanted

to achieve State recognition of the Santa Paula Freeway as a State Scenic Highway. If this is the case, the City should petition the State to include Highway 126 in the Master Plan of State Scenic Highways. Ventura County has already adopted an objective as part of their Scenic Highways Element to that effect.

SAN BUENAVENTURA SCENIC SYSTEM

The categories of proposed State Scenic Highways, existing County Scenic Highways and proposed County Scenic Highways have been explained in previous sections. The following is a brief explanation of the categories that deal specifically with the City of San Buenaventura's proposed programs.

Scenic Drives: These drives are within the City's planning area and have natural vistas of the mountains, ocean, rivers, and large agricultural areas. These drives will provide relief to the City's motoring public from the urban scape. The drives will also attract tourists, an established City goal. The Scenic Drives have been selected so as to capitalize on the City's aesthetic natural setting.

The streets proposed for a Scenic Drive designation are:

- Foothill Road
- Poli Street
- Brakey Road and Ferro Drive in Grant Park
- Oak Street
- Figueroa Street
- North Bank Drive and its future extension
- Olivas Park Drive
- Harbor Boulevard
- Spinnaker Drive - Schooner Drive and Anchors Way in the Ventura Marina
- Loop Drive around the fairgrounds

Scenic Streets: These are streets that traverse mostly an urban setting. They are the most heavily traveled and therefore would have a great benefit to the motoring public if they were made scenic. The scenic qualities along these routes would be, by their very nature, quite different from those along the Scenic Drives. The Scenic Drives rely on the natural attributes of the City

while the Scenic Streets will derive their aesthetic quality from City design standards and landscaping. The streets proposed for the Scenic Streets category are:

- Seaward Avenue
- Thompson Boulevard
- Main Street from Telephone to Thompson
- Mills Road
- Victoria Avenue
- Kimball Road
- Telephone Road
- Telegraph Road
- Wells Road

Scenic Approaches: Those under consideration are those that approach the City from the west as you are crossing the Ventura River, from the north as you enter the planning area on the Ojai Freeway, from the east on Foothill Boulevard and the Santa Paula Freeway, from the south as you cross the Santa Clara River on Highway 101, Harbor Boulevard and the proposed extension of Victoria Avenue. There are other proposed scenic approaches at the Seaward Avenue off ramp and California Street off ramp along Highway 101.

The purpose of the Scenic Approaches is to inform even the casual traveler that they are entering the City of San Buenaventura. The intent of the program is to preserve the natural setting of the City's scenic entrances or enhance them as much as possible. The Scenic Approaches are to convey the spirit of the City of San Buenaventura to the passing motorist through aesthetic treatment of its natural attributes rather than through the standard practices of advertising.

IMPLEMENTATION OF STATE PROGRAM

The element so far has outlined the State, the County and the City scenic routes which are proposed for the City's planning area. Since some streets may appear in all systems, the City has the choice as to which system

it will participate in. It should be made clear though that regardless which system the City participates in it is responsible for protecting or enhancing the scenic qualities of the routes that are within its jurisdiction. The following outlines the steps which must be followed if the City wishes to receive official designation for any or all of the proposed State Scenic Highways displayed on Map II.

STATE PROCEDURES

- The route in question must appear on the State Master Plan of Scenic Highways.
- The jurisdiction through which the route passes requests the State Division of Highways to conduct a scenic highway corridor study for the route in question.
- The Division of Highways completes the corridor study and submits it to the jurisdiction which requested the study.
- Aided by the corridor study, the jurisdiction completes a "plan and program" for the protection of scenic values within the corridor which addresses the State's "minimum requirements".
- After the adoption of the scenic corridor (as defined by the State Division of Highways) and the plan and program in public hearings, the jurisdiction submits its plan and program as an application to the Division of Highways.
- The Division of Highways passes the Plan and Program and Corridor Study on to the Interdepartmental Committee on Scenic Highways for its review.
- The Interdepartmental Committee reviews and comments on the package and passes it to the State Scenic Highway Advisory Committee which reviews the package and reports its findings to the Director of the Department of Public Works.
- Based on the recommendation of the Advisory Committee, the Director of Public Works makes the final determination as to whether official designation should be granted.

There are some key words within the State's procedure that need further explaining. The State requires that a plan and program be developed by each

jurisdiction requesting official scenic highway designation for a State Scenic Highway. For the County Scenic Highway System such a plan and program is preferable but optional. The State suggests that each of the following "minimum requirements" be addressed in any plan and program submitted to it, even if it is only to indicate why the application of such requirement is unnecessary.

Minimum Requirements

Adopted General Plan Map and Policy Statement: It is required that an element, relating to enhancement of environmental resources and other elements of the jurisdiction's general plan, be adopted by the Planning Commission and legislative body pursuant to state planning law.

Specific Development Plan of the Scenic Highway Corridor: The specific plan will satisfy Requirement Number 1, provided the plan is based on comprehensive and thorough studies of the factors affecting development within the corridor.

Sign or Billboard Ordinance: Off-premise advertising must be prohibited within the corridor, except in the case of an approved information panel. An adopted program for the eventual elimination of existing off-premise advertising will be acceptable (a maximum amortization of five years should be considered). For outdoor advertising that is thought to be necessary, it is suggested that information panels should be utilized and located in an inconspicuous manner within the corridor.

Land Use Regulations: An adequate zoning ordinance with proper administrative and enforcement provisions will be considered to be the minimum

acceptable measure. Site Plan (corridor), or architectural review, and performance standards procedures may be included as a part of the ordinance. Contracts under the Land Conservation Act may be considered to be acceptable for fulfilling this requirement.

In order to have a specific plan as outlined in the State's minimum requirements, the City must have a corridor study. The Division of Highways conducts such a corridor study and submits it to the jurisdiction which requested the study. Aided by the corridor study, the City then prepares a specific plan for the protection and enhancement of the scenic values within the corridor which was addressed by the State's study.

SCENIC CORRIDOR

A Scenic Corridor is that area surrounding a scenic route whose scenic qualities an entity wishes to preserve. Since these qualities are experienced visually, the logical way to define a Scenic Corridor, then, is to use a line of sight method. Using this approach, the corridor is generally defined by what can be seen by the driver or passengers of a vehicle.

In rural areas, ridge lines most often define a corridor, though vegetation at the roadside may also represent the extent of one's "view from the road". Corridor boundaries formed by vegetation may be erased by harvesting, fire, or a change in land use, and therefore corridor boundaries should perhaps be located beyond this type of screen.

Other factors in designating a corridor are the design speed and geometrics of the highway. These factors affect the angle at which certain portions of the landscape may be seen and how long they may be viewed.

Aside from using the "view from the road" the following are criteria that can be used to define the Scenic Corridor.

Criteria for Corridor Delineation:

- Topography - when a land form, such as the crest of a ridge, brings the range of vision from the highway close to the right-of-way, the entire visible area should be included in the corridor.

- Vegetation - consideration should be given to locating the corridor boundaries beyond screens, such as orchards, eucalyptus groves, etc. and into land otherwise visible from the freeway.

- Structures - as in above, structures need not be a controlling factor in establishing corridor boundaries.

- Where distant horizons or vast panoramas are visible from the highway, a corridor boundary closer than the visual range may be selected on criteria other than visibility. Any aesthetic standards which are enforced as part of a local Scenic Highway Program should be realistically limited to land having the greatest visual impact from the highway.

- Natural and Man-Made Features - outstanding features whether natural or man-made should normally be included in the corridor together with their surrounding area.

- Landscape Character - all types of landscape, whether wild, cultivated or urban, may have scenic values and should be considered for inclusion in the corridor.

- Ecological Areas - the integrity of an ecological unit, and the flora and fauna constituting its scenic values and should be preserved by including all of it in the corridor wherever feasible.

- Visual Impact - the visual impact of a feature or an area may be evaluated in terms of its uniqueness, its size, the scale of details, boldness of fauna, vividness of color and other specific characteristics in relation to its distance from the viewer and the duration of the visual experience.

- Legal Boundaries - the precise boundaries of the corridor, since they are to be used for administrative purposes, may coincide wherever possible with property lines, zoning boundaries, city limits, or other legal delineations.

Once the Scenic Corridor has been designated, an inventory of the pertinent features within the corridor should be completed. Features included

in the inventory can either be "assets" or "liabilities" to the City with respect to the scenic quality of the route. Once the assets and liabilities of a route have been inventoried, the next step is to determine what action is to be taken relative to each feature, hence the Specific Plan that was outlined in the State's minimum guidelines.

To summarize, a plan and program for a scenic route's corridor is designed to identify the actions that are to be taken in order to create, enhance or preserve the scenic qualities within the corridor. Once a plan and program has been developed and adopted for a local system, formal designation of the route as "scenic" is the last remaining act. The State reserves the right of withdrawing the scenic highway designation if the City does not follow the plan and program as adopted and accepted by the State.

IMPLEMENTATION OF COUNTY PROGRAM

The County Board of Supervisors have adopted a Scenic Highways Element and the routes included in the County's system are those depicted on Map I of this report. The Board of Supervisors also adopted as a guide, the State of California's Planning and Design Standards for Scenic Highways as outlined in Article 2.5, Section 261 of the Streets and Highways Code. This section was outlined earlier but is repeated again for emphasis.

Chapter 2 - The State Highway System

Article 2.5 - The State Scenic Highway
Added by Chapter 1788, Statutes 1963
Heading amended by Chapter 1352, Statutes 1969

Planning and Design Standards

261. The department shall, with the advice of the Scenic Highway Advisory Committee, establish and apply pertinent planning and design standards for development of official scenic highways.

In establishing and applying such standards for, and undertaking the development of, official scenic highways, the department shall take into consideration the concept of the "complete highway", which is a highway which incorporated not only safety, utility, and economy but also beauty. The department shall also take into consideration in establishing such standards that, in a "complete highway", pleasing appearance is a consideration in the planning and design process. In the development of official scenic highways, the department shall give special attention both to the impact of the highway on the landscape and to the highway's visual appearance. The standards for official scenic highways shall also require that local governmental agencies have taken such action as may be necessary to protect the scenic appearance of the scenic corridor, the band of land generally adjacent to the highway right-of-way, including, but not limited to (1) regulation of land use and intensity (density) of development; (2) detailed land and site planning; (3) control of outdoor advertising; (4) careful attention to and control of earthmoving and landscaping; and (5) the design and appearance of structures and equipment.

Amended by Chapter 1352, Statues 1969

The County Board of Supervisors further adopted the design standards for scenic highways as outlined in the State publication, "The Scenic Route, a Guide for the Official Designation of Eligible Scenic Highways". These differ from the previous standards in that they deal with new highways or streets rather than already constructed streets. These Design and Construction Standards are listed below.

Design and Construction Standards

The establishment of general alignment and grade to fit the scenic character of the area to be traversed.

a. Curvilinear alignments should be stressed.

b. The highway profile should be rolled to fit the topography.

The reduction to a minimum of all roadway cut and fill scars.

a. Elimination of cuts or fills wherever possible. This may be accomplished through the use of tunnels and/or bridges when necessary.

b. Flatten or contour all grades and landscape slopes where they cannot be eliminated.

c. Acquisition of wider rights-of-way or scenic easements should be encouraged were (1) Access control is necessary; and (2) The elimination of outdoor advertising and unsightly development

through zoning should be required.

d. The provision of vegetation screens for the purpose of hiding objectionable views.

e. Selective clearing of vegetation to open up or provide views of desirable scenic qualities.

f. The location of and/or design of structures with an intent to achieve beauty or aesthetic qualities.

g. The provision of erosion control standards.

h. The provision of roadside parking areas and lookouts wherever scenic vistas are warranted.

The Board of Supervisors as part of the Scenic Highways Element adopted a policy of requiring each City to prepare and adopt a plan and program for each scenic route it wishes to be designated as an Official County Scenic Route when the City finds it feasible to do so. As stated before, this is an optional requirement. To summarize, Ventura County has adopted very similar procedures as the State on the designation of County Scenic Routes. The County though will not conduct a corridor study for the local jurisdictions as will the State. The County will cooperate with the cities in all phases of development of the County Scenic Highways system.

DEVELOPMENT OF CITY PROGRAM AND ITS IMPLEMENTATION

The Comprehensive Plan Advisory Committee has already approved two objectives that directly address the Scenic Highways Element. These objectives were presented earlier in the report but are repeated here for discussion purposes. The objectives were adopted by CPAC in September 1973 as part of the Circulation and Scenic Highways Objectives.

> OBJECTIVE 5: To adopt, as part of the Circulation and Scenic Highways Element the Scenic Highways, Scenic Drives and Scenic Approaches Map which will serve as a guide for landscaping improvements and special land use controls by January 1974, and under present budget limitations.

EXPLANATION: Adoption of the Scenic Highways, Scenic Drives and Scenic Approaches Map should complement the Ventura County Scenic Highways program as well as add new dimensions to the unique and outstanding aesthetic character of the community by introducing Scenic Drives and Scenic Approaches. The Architectural Review Board, Planning Commission and City Council would be requested to review alternative standards and criteria for Scenic Drives as well as to select the landscaping treatment deemed most desirable for the City's Scenic Approaches.

NOTE: Objective #6 of the adopted Open Space and Conservation Element directs the staff to investigate the creation of "scenic approaches" to the City of San Buenaventura. While the design and cost of such visual improvements have not as yet been determined, (the deadline for such investigation is set at July, 1974), the areas designated on the Scenic Highways, Scenic Drives and Scenic Approaches Map as appropriate for the location of Scenic Approaches is a positive step toward the desired implementation of Scenic Approaches objective.

OBJECTIVE 6: To develop a pilot Scenic Approach to the community at the U.S. 101, (Ventura Freeway), southerly entry into the community, by the Department of Community Development, at an undetermined cost by July, 1974.

EXPLANATION: The U.S. 101 bridge over the Santa Clara River is the most frequently used entry point into the community. It is suggested that this entryway receive the highest priority for implementation of a pilot Scenic Approach into San Buenaventura.

Staff is recommending to CPAC that they reaffirm the above objectives with the following minor revisions. To delete the word "circulation" from Objective 5 seeing that the Circulation and Scenic Highways Elements are being separated.

To delete the time limit or substitute a more appropriate one, and in regards to Objective 6, staff recommends that the date be deleted.

The following is a complete list of staff recommendations which includes the above objectives.

STAFF RECOMMENDATIONS

Selection of Routes in City's System

. To adopt, as part of the Scenic Highways Element, the Scenic Highways, Scenic Drives and Scenic Approaches Map which will serve as a guide for landscaping improvements and special land use controls. (The Map referred to is the one dated January 1975.)

. To petition the State to include the Santa Paula Freeway in the State Master Plan of Scenic Highways.

Defining Scenic Corridors

. To adopt the following general criteria for defining scenic corridors for all routes within the City's system including the State, the County and the City routes.

Criteria for Corridor Delineation:

. Topography - when a land form, such as the crest of a ridge, brings the range of vision from the highway close to the right-of-way, the entire visible area should be included in the corridor.

. Vegetation - consideration should be given to locating the corridor boundaries beyond screens, such as orchards, Eucalyptus groves, etc., and into land otherwise visible from the freeway.

. Structures - Structures need not be a controlling factor in establishing corridor boundaries.

. Where distant horizons or vast panoramas are visible from the highway, a corridor boundary closer than the visual range may be selected on criteria other than visibility. Any aesthetic standards which are enforced as part of a local Scenic Highway Program should be realistically limited to land having the greatest visual impact from the highway.

. Natural and Man-Made Features - outstanding features whether natural or man-made should normally be included in the corridor together with their surrounding area.

. Landscape Character - all types of landscape, whether wild, cultivated or urban, may have scenic values and should be considered for inclusion in the corridor.

. Ecological Areas - the integrity of an ecological unit, and the flora and fauna constituting its scenic value, should be preserved by including all of it in the corridor wherever feasible.

. Visual Impact - the visual impact of a feature or an area may be evaluated in terms of its uniqueness, its size, the scale of details, boldness of fauna, vividness of color and other specific characteristics in relation to its distance from the viewer and the duration of the visual experience.

. Legal Boundaries - the precise boundaries of the corridor, since they are to be used for administrative purposes, may coincide wherever possible with property lines, zoning boundaries, city limits, or other legal delineations.

Guidelines for Corridor Protection

. To adopt the following guidelines in the preparation of plans and programs for the protection of all scenic corridors within the City's jurisdiction.

1. Land Uses - Land uses within the scenic corridor should be consistent with the Land Use Element of the Comprehensive Plan.

   (a) Building Heights - Criteria in establishing limits on building heights should include:

      1.) Visibility or obstruction of visibility from highways
      2.) Visual impact on the motorist
      3.) Relationship to surrounding structures

   (b) Screening - Existing or indispensable offensive land uses should be screened from view from the highway or inconspicuously located if within a scenic corridor. Effective screening should be accomplished by proper planting, grading or fencing.

2. Signs and Outdoor Advertising

   (a) On-Premise Signs - The size, height, number and type of on-premise signs allowed should be the minimum necessary for identification. The design, materials, color, texture and/or location should relate to their surrounding physical environment.

   (b) Off-premise advertising is allowed only within the M-2 Zone with a Conditional Use Permit within the City's jurisdiction. The City should not issue Conditional Use Permits for signs within a scenic corridor. Furthermore, an increase in the City's sign enforcement program is needed so as to bring many illegal billboards into conformance with City ordinance.

3. Utility Lines

   (a) Underground Placement - New or relocated utility lines should be placed underground whenever feasible.

   A high priority in the allocation of utility undergrounding funds that are available to the City should be directed toward projects along scenic routes or within scenic corridors.

4. Plant Material

   (a) Preservation - Existing specimens and stands of trees and other plant materials of outstanding value should be preserved.

   (b) Cover and Screening - Vegetative cover, preferably native to the area, and other screening devices should be provided to hide the scars and blend with the natural landscape.

Scenic Approaches

. To develop a pilot scenic approach to the community at the U.S. 101 (Ventura Freeway).

. The development of the pilot scenic approach should use the following as guidelines.

1. Establish a specific boundary for the scenic approach corridor.

2. In so far as feasible, natural topography, vegetation and scenic features of the site shall be retained and incorporated into the corridor. Such as the Eucalyptus trees along the north bank of the Santa Clara River.

3. Have State provide landscaping along the State right-of-way from the Santa Clara River to the 101 Drive-In Theatre.

4. Provide an identification mark within the scenic approach.

   . Monument sign
   . Mounded sign
   . Other

5. Potentially unsightly features shall be located so as to be inconspicuous from the scenic approach or effectively screened from view by planting and/or fences, walls, grading, etc.

SCENIC HIGHWAYS ELEMENT

A. SELECTION OF ROUTES IN CITY'S SYSTEM

To adopt, as part of the Scenic Highways Element, the Scenic Highways, Scenic Drives and Scenic Approaches Map which will serve as a guide for landscaping improvements and special land use controls.

The City should establish a Scenic Drive Loop System and a signing program which will lead people through the system.

Recognizing the fact that it will be difficult to have a viable Scenic Drive Loop System until North Bank Drive is completed, it will be necessary for the City to temporarily sign Telephone Road as a Scenic Drive along its section which runs from Wells Road to Victoria Avenue. It will also be necessary to sign Victoria Avenue from Telephone Road to Olivas Park Drive. The return route to the City from Ventura Avenue will be on Shell Road to the Ojai Freeway.

The City should establish priorities for the beautification of the Select System of Streets during the development of the Land Use Element and make a designation of Scenic Streets with consideration of impact on community characteristics.

Also, the City should petition the State to include the Santa Paula Freeway in the State Master Plan of Scenic Highways.

B. DEFINING SCENIC CORRIDORS

To adopt the following general criteria for defining scenic corridors for all routes within the City's system including the State, the County and the City routes.

Criteria for Corridor Delineation.

Topography - when a land form, such as the crest of a ridge, brings the range of vision from the highway close to the right-of-way, the entire visible area should be included in the corridor.

Vegetation - consideration should be given to locating the corridor boundaries beyond screens, such as orchards, Eucalyptus groves, etc., and into land otherwise visible from the freeway.

Structures - structures need not be a controlling factor in establishing corridor boundaries.

Where distant horizons or vast panoramas are visible from the highway, a corridor boundary closer than the visual range may be selected on criteria other than visibility. Any aesthetic standards which are enforced as part of a local Scenic Highway Program should be realistically limited to land having the greatest visual impact from the highway.

Natural and Man-Made Features - outstanding features whether natural or man-made should normally be included in the corridor together with their surrounding area.

Landscape Character - all types of landscape, whether wild, cultivated or urban, may have scenic values and should be considered for inclusion in the corridor.

Ecological Areas - the integrity of an ecological unit, and the flora and fauna constituting its scenic value, should be preserved by including all of it in the corridor wherever feasible.

Visual Impact - the visual impact of a feature or an area may be evaluated in terms of its uniqueness, size, the scale of details, boldness of fauna, vividness of color and other specific characteristics in relation to its distance from the viewer and the duration of the visual experience.

Legal Boundaries - the precise boundaries of the corridor, since they are to be used for administrative purposes, may coincide wherever possible with property lines, zoning boundaries, city limits, or other legal delineations.

C. GUIDELINES FOR CORRIDOR PROTECTION

To adopt the following guidelines in the preparation of plans and programs for the protection of all scenic corridors within the City's jurisdiction.

1. Land Uses - Land uses within the scenic corridor should be consistent with the Land Use Element of the Comprehensive Plan.

   (a) Building Heights - Criteria in establishing limits on building heights should include:

      1) Visibility or obstruction of visibility from highways
      2) Visual impact on the motorist
      3) Relationship to surrounding structures

   (b) Screening - Existing or indispensable offensive land uses should be screened from view from the highway or inconspicuously located if within a scenic corridor. Effective screening should be accomplished by proper planting, grading or fencing.

2. Signs and Outdoor Advertising

   (a) On-Premise Signs - The size, height, number and type of on-premise signs allowed should be the minimum necessary for identification. The design, materials, color, texture and/or location should relate to their surrounding physical environment.

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(b) Off-premise advertising is allowed only within the M-2 Zone with a Conditional Use Permit with the City's jurisdiction. The City should not issue Conditional Use Permits for signs within a scenic corridor. Furthermore, an increase in the City's sign enforcement program is needed so as to bring many illegal billboards into conformance with City ordinance.

4. Utility Lines

(a) Underground Placement - New or relocated utility lines should be placed underground whenever feasible.

A high priority in the allocation of utility undergrounding funds that are available to the City should be directed toward projects along scenic routes or within scenic corridors.

5. Plant Material

(a) Preservation - Existing specimens and stands of trees and other plant materials of outstanding value should be preserved.

(b) Cover and screening - Vegetative cover, preferably native to the area, and other screening devices should be provided to hide the scars and blend with the natural landscape.

D. SCENIC APPROACHES

To develop a pilot scenic approach to the community at the U.S. 101 (Ventura Freeway).

The development of the pilot scenic approach should use the following as guidelines:

1. Establish a specific boundary for the scenic approach corridor.

2. Insofar as feasible, natural topography, vegetation and scenic features of the site shall be retained and incorporated into the corridor. Such as the Eucalyptus trees along the north bank of the Santa Clara River.

3. Have State provide landscaping along the State right-of-way from the Santa Clara River to the 101 Drive-In Theatre.

4. To develop a pilot Scenic Approach to the community at the U.S. 101, Ventura Freeway, southerly entry into the community, by the Department of Community Development, at an undetermined cost by July 1976.

   Adoption of the Scenic Highways, Scenic Drives and Scenic Approaches Map should complement the Ventura County Scenic Highways program as well as add new dimensions to the unique and outstanding aesthetic character of the community by introducing Scenic Drives and Scenic Approaches. The Architectural Review Board, Planning Commission and City Council would be requested to review alternative standards and criteria for Scenic Drives as well as to select the landscaping treatment deemed most desirable for the City's Scenic Approaches. Objective No. 6 of the adopted Open Space and Conservation Element directs the staff to investigate the creation of "scenic approaches" to the City of San Buenaventura. While the design and cost of such visual improvements have not as yet been determined (the deadline for such investigation is set at July 1976), the areas designated on the Scenic Highways, Scenic Drives and Scenic Approaches Map as appropriate for the location of Scenic Approaches is a positive step toward the desired implementation of Scenic Approaches objective. The U.S. 101 bridge over the Santa Clara River is the most frequently used entry point into the community. It is suggested that this entryway receive the highest priority for implementation of a pilot Scenic Approach into San Buenaventura.

5. The City shall investigate possible funding sources for developing a corridor protection program for the designated scenic approaches along Highways 101 and 33. Following adoption of such a program, the City should encourage the State (Cal-Trans) to designate Highways 101 and 33 as official State Scenic Highways.

RESOLUTION NO. 75-125

A RESOLUTION OF THE CITY COUNCIL ADOPTING THE SCENIC HIGHWAYS ELEMENT OF THE CITY'S COMPREHENSIVE PLAN

BE IT RESOLVED by the City Council of the City of San Buenaventura as follows:

SECTION 1: The City Council hereby adopts the Scenic Highways Element as recommended by the Comprehensive Plan Advisory Committee and as approved by the Planning Commission on June 17, 1975.

SECTION 2: The adoption of the Scenic Highways Element supersedes the reference made in City Council Resolution No. 7164, dated February 8, 1971, relative to the scenic highways project from an extension of Harbor Boulevard to Emma Wood Beach. This was deleted from the plan since automobile travel in the area should not be encouraged, but should be reserved for bicyclists, surfers and pedestrians.

Passed and adopted this 4th day of August, 1975.

Barbara J. Kam

City Clerk

75-125/62

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting thereof, held on the 4th day of August, 1975, by the following vote to wit:

AYES: Councilmen Kountz, McWherter, Bozung, Ellison, Laufer and Eaton.

NOES: Councilmen None.

ABSENT: Councilman Garrett.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 5th day of August, 1975.

Barbara J. Kam

City Clerk

PARKS & RECREATION ELEMENT

SECTION VIII

PARKS AND RECREATION ELEMENT

TABLE OF CONTENTS

PARKS AND RECREATION ELEMENT

INTRODUCTION

The City's Parks and Recreation Element was adopted by the City Council in 1979. The document contains goals and objectives to provide adequate parkland and recreation facilities City-wide to enrich the living environment of residents as well as provide a significant enhancement to tourism.

This element is an optional element, i.e., not required by State law. However, the City formulated the element to provide a tool for long-range planning.

The element itself was not amended but the City's Ordinance Code was amended in 1983 in response to State legislation regarding fees for parkland or reservation of land for park purposes. The Council Ordinances which amended the Ordinance Code are enclosed with the element.

GOALS & OBJECTIVES

In past years, through various plans, elements, and policy statements, the City of Ventura has formally adopted a variety of goals and objectives which are related to establishing a park and recreation environment. By reference, these goals, objectives, and statements are reviewed and reaffirmed as part of this document. Further, the following goals and objectives which are the product of this document are also proposed for adoption as part of the Park and Recreation Element.

Goals

The following goals represent a consolidation of the City's past, present, and future aspirations for establishing a park and recreation environment which will enhance the quality of living within the City of San Buenaventura, and as such it is recommended that they be formally recognized and adopted in support of the City's commitment toward the fulfillment of the community's park and recreation needs.

Goal

Acquire and/or reserve land for future parks and recreation open space as a desirable means to shape San Buenaventura's form and size and to serve the needs of the residents.

Goal

Plan, acquire, design, and develop areas and facilities to meet the leisure and aesthetic needs of the residents of the City within reasonable funding capabilities.

Goal

Provide a wide variety of quality leisure activity opportunities for all residents of the City, with emphasis on family, youth, and lifetime programming.

Goal

Provide ongoing efficient and effective design, development, renovation, and stewardship of visually aesthetic and functional park areas and facilities.

Goal

Act as a catalyst in coordinating the efforts of public and private agencies and community groups in the planning and development of park and recreation programs and facilities.

Goal

Facilitate, coordinate and act as a catalyst in the preservation, development, enhancement and interpretation of the cultural, historic and natural resources of the City, both for the benefit of residents and the enhancement of tourism.

Goal

Participate in identifying, drafting, supporting or opposing of local, state and federal legislation relating to the functions and purposes of the City of San Buenaventura and the Department of Parks and Recreation.

Goal

Provide park and recreation areas and facilities throughout the community in accordance with the distribution of population and in such manner as to make them conveniently accessible and safe for all residents.

Objectives

The following objectives are the result of the information and analysis as presented within the text of the Park and Recreation Element, and are recommended for implementation in order to continue the City's direction toward meeting the park and recreation needs of its citizens.

Objective

Develop a Street Tree Master Plan designed to address the provision of a comprehensive Street Tree Program in fiscal year 1979-80.

Objective

Initiate the establishment of a public non-profit corporation for the purpose of promoting and supporting public park and recreation services in fiscal year 1979-80.

Objective

Renew a study of the Quimby Act and provide recommendations for the implementation of such by fiscal year 1980-81.

Objective

By fiscal year 1980-81, develop criteria so that a proposed hiking trail system can be dedicated on the Hillside Land Use and Phasing Map, to be developed as feasible via improvement and dedication in conjunction with hillside development in Phase I areas.

Objective

By fiscal year 1980-81, initiate a study which will identify existing and future deficiencies for special recreation facilities within the City's park and recreation system, both public and private, and incorporate the study's recommendation into the Park and Recreation Element.

Objective

Develop joint use agreements with the Ventura Unified School District and Ventura College regarding the use of City, School District and College facilities in fiscal year 1979-80.

Objective

Seek an amendment to Ventura County's Recreation Element to conform to and include the City's Park and Recreation Element as part of that plan in fiscal year 1979-80.

Objective

Develop a "giftsbook" catalog for donation and dedications of park and recreation areas, facilities and programs in fiscal year 1979-80.

Objective

Update and/or develop "as built" master plans for all City park areas and facilities to accurately reflect the existing park and recreation system by fiscal year 1980-81.

Objective

Evaluate, review and, where appropriate, amend the Park and Recreation Element on a biennial basis.

ACQUISITION & DEVELOPMENT PRIORITIES

Recommendations

It is the intent of the Park and Recreation Element to serve as a policy guide for determining the priority, location, size and types of parks for a comprehensive areawide park system. In order to accomplish that, these recommendations provide direction and guidance relative to proposed priorities for an acquisition and development program for neighborhood parks.

The following recommendations are the result of the information and analysis as presented within the Workbook portion of the Park and Recreation Element. In order to evaluate priorities for the acquisition or development of new park areas, it was necessary to define local needs as indicated by existing and future park acreage deficiencies. An appraisal for neighborhood, service area and city-wide parks was accomplished through the use of proposed park standards which relate to acreage needs based on population and existing facilities. It should be noted that the application of such a process may limit sensitivity toward factors other than population and existing facilities. Deficiencies which are identified as a result of the proposed standards undoubtedly provide a substantial base of information which should be used in the evaluation of neighborhood and service area park needs. There are other factors, however, which should also be considered when developing overall priorities for the acquisition or development of neighborhood or service area parks. These factors have been discussed within the text of the element.

Neighborhood & Service Area Parks

Generally, the provision of neighborhood and service area parks facilities is considered to be more critical than city-wide parks and special facilities due to the degree of deficiency identified and the availability of suitable sites. The acquisition and improvement of neighborhood parks in existing deficient areas, and the planning and protection of similar park sites in areas of high growth potential are two of the most important activities that must be undertaken in the near future.

The recommendations for prioritizing neighborhood park needs are based upon identified existing and projected deficiencies, the City's Phasing Plan, the availability of land and a variety of other considerations as discussed throughout this element. It should be noted that the nature of this element and the criteria which has been used in the evaluation of these needs is subject to change due to future amendments to the Comprehensive Plan by changes in zoning or land use designations. If decisions are made which significantly impact existing or future needs, the Park and Recreation Element should retain enough flexibility to respond to such changes.

It should be noted that the following priorities for neighborhood park acquisition and development do not reflect the park sites of Serra (Petit), Juanamaria or Thille. The Petit and Juanamaria sites have been acquired and are scheduled for development as part of the City's 1979-80 Capital Improvement Program and are, therefore, considered existing priorities within the City's present system.

The Thille site has also been acquired and is currently part of the City's five-year Capital Improvement Program and is scheduled for development in the 1980-81 fiscal year. Should the priorities as recommended within the Park and Recreation Element be adopted as part of the Capital Improvement Program, consideration should be given to prioritizing the Thille site in relationship to the other recommendations.

These priorities are recommended in relationship to the City's Phasing Plan, and as such, it is more appropriate that an actual acquisition and development schedule be included in the annual review of the City's Capital Improvement Program.

Neighborhood Parks

One of the most important components of a local park system is the neighborhood park. Neighborhood parks are generally intended to serve the open space and recreational needs of the immediate neighborhood, which is usually within walking distance of the park.

The following priorities are recommended for the acquisition and development of neighborhood parks within the City of San Buenaventura:

Phase I Communities

Phase I communities have the highest priority for neighborhood parks due to the identified deficiencies and the need to satisfy these deficiencies while there is still suitable land available. These priorities are also based on the assumption that all land use designations will be developed to their full potential.

Priority No. 1 - Avenue Neighborhood No. 2 (Southern)

The Avenue Neighborhood No. 2 (Southern) has the highest recommended priority for a neighborhood park. This is due primarily to an identified existing deficiency of 5.77 acres and a projected future deficiency of an additional 4.43 acres which equals a combined total of a 10.20 acre deficiency.

In addition to having the highest acreage deficiency, the Avenue Community level of income is 34% below the City average; the population under 18 is 79% above the City average; the population over 55 is 35% above the average; and the population density is 7% above the average. These factors would also support the need for additional neighborhood park acreage within this community.

Because of access problems created by single larger park site, it is recommended that two smaller park sites be located in the northern and southern portions of the neighborhood. The higher priority is the southern portion, due to existing deficiencies within this area and the lesser amount of available land.

Specific recommendations regarding the size and availability of the respective park sites will be contingent upon completion of a site selection analysis, which is in process at the time of this writing.

Priority No. 2 - Montalvo Neighborhood No. 2

This neighborhood, which is generally south of Telephone Road, will contain over 90% of the Montalvo Community's total population of nearly 12,000 people. While this is a considerable population to be served, a single site of approximately seven acres in the westerly portion, when coupled with Barranca Vista Park in the easterly portion, should satisfy the existing and projected park deficiency of 6.81 acres.

At the time of actual acquisition, consideration should also be given to the potential for two smaller park sites located in conjunction with projected population distributions.

In addition to the identified deficiency, it should also be noted that the Montalvo Community's demographic indicators support the concept of additional neighborhood park acreage with the level of income at 6% below the City average and the population under 18 at 80% above the average.

Priority No. 3 - Arroyo Verde Neighborhood No. 2

According to standards, neighborhood park needs in this neighborhood are not currently satisfied, and although the deficiency of 6.06 acres is not likely to be mitigated, due to the lack of available land, it is recommended that the City seek an agreement with Ventura College which would enable the development of approximately one acre of land for the purposes of neighborhood park type amenities.

This recommendation is based on several factors:

1) There is currently a lack of available land within this neighborhood that would satisfy the identified deficiency.
2) Due to financial limitations, it is not reasonable to consider demolition and relocation costs associated with the provision of a six-acre park site.
3) Although Ventura College does not satisfy neighborhood park needs, due to the lack of amenities, it does provide adequate open space.
4) The community's demographic indicators of income, which is 44% above the average and population density which is 28% below the average, would tend to lessen the severity of the need for additional neighborhood park acreage.

Priority No. 4 - Loma Vista Neighborhood Nos. 1, 2 and 3

Independently, none of the three neighborhoods in the Loma Vista Community provide sufficient demand for the development of a standard sized neighborhood park. The combination of all three neighborhoods, however, creates a total deficiency of 4.55 acres. Given the full development status of the community south of Foothill Road and the lack of suitable vacant land, it is not likely that park needs will be mitigated by the provision of a neighborhood park within either Neighborhood No. 2 or 3. The potential does exist, however, to provide a park site in Neighborhood No. 1 in conjunction with initial residential development in the Loma Vista drainage area and in accordance with the preparation of a Drainage Area Master Plan, which would satisfy the total community acreage deficiency.

Although the potential to satisfy the acreage deficiency of the entire community exists, due to access problems, it may not be reasonable to provide a park of that size north of Foothill Road. Therefore, consideration should be given at the time of acquisition whether to attempt to satisfy the entire community deficiency by providing a park in Neighborhood No. 1, or by providing smaller subneighborhood park sites in both Neighborhood Nos. 2 and 3.

Priority No. 5 - Montalvo Neighborhood No. 1

Montalvo Neighborhood No. 1 is confined by major physical barriers which limit residential access to and from the neighborhood. It is anticipated that this area will be developed in the future with a mixture of non-residential and high density residential uses. Due to pending projects on all available land, it is, therefore, not likely that the projected deficiency of 2.82 acres will be mitigated by a typical neighborhood park. There is the potential, however, to offset some of the park needs by the provision of special amenities and some additional acreage within the proposed linear park development which is adjacent to the Santa Paula Freeway and Johnson Drive.

It should be noted that this neighborhood offers the City the potential to exercise influence over a private developer with the objective of meeting neighborhood park needs which will be generated as a result of the development. This could be accomplished by either land dedication and improvement or expansion of the open space plans within the proposed development. Regardless of whether this specific development proposal is approved, because of the existing land use designation of this neighborhood, the City should continue to consider the concept of requiring the developer to satisfy generated neighborhood park needs.

Priority No. 6 - Downtown Neighborhood No. 1

Downtown Neighborhood No. 1 is generally located in the hillsides north of Poli Street. The potential does exist to provide park facilities in order to satisfy the projected deficiency of 2.66 acres in conjunction with future design and development of the Downtown Drainage Area as future residential development occurs. Other factors which would support this priority include demographic indicators, such as income (44% below the City's average); population over 55 (4% above average); and population density (71% above average).

Priority No. 7 - Avenue Neighborhood No. 2 (Northern)

As noted in Priority No. 1, because of existing and future park deficienices and access problems created by a single, larger park site in the Avenue Neighborhood No. 2, it is recommended that two smaller park sites be located in the northern and southern portions of the neighborhood. The lower priority would be the northern portion due to greater availablility of land and the lesser existing deficiency of the area.

Priority No. 8 - Thille Neighborhood No. 1

Current demand for park acreage within Thille Neighborhood No. 1 is considered to be minimal and unable to be satisfied prior to the development of land currently under Land Conservation Act contract. If and when this neighborhood was to develop residentially, there would be a projected deficiency of 7.79 acres, which is recommended to be satisfied at the time residential development occurs.

Phase II Community

Because of the relative availability of land, the Phase II community is considered to be the second priority in the provision of neighborhood parks. This priority is based on the assumption that the Phase II community will not be opened for residential development prior to further development of Phase I communities. It is also based on the assumption that Phase II will open for development within a reasonable period of time. If Phase II were not to open, then a higher consideration must be given to existing deficiencies which have been identified in Phase III communities. Because the Juanamaria Community is the only community designated as Phase II and the existing deficiency is not signficiant enough to justify a neighborhood park, consideration should be given to satisfying any existing as well as future needs at the time of future residential development.

Priority No. 1 - Juanamaria Neighborhood No. 1 (Existing and Future Deficiencies)

Although the relatively limited existing population of this neighborhood and the resultant deficiency of 1.55 acres could not justify a standard sized neighborhood park, future development would create an additional deficiency of 3.85 acres, and as such, would necessitate such a facility. There is currently sufficient land in the central portions of the neighborhood which could be used advantageously for a park site if and when future development occurs.

This neighborhood also offers the potential for the City to capitalize on future developer requirements to satisfy their neighborhood park responsibilities through land dedication and development.

Phase III Communities

Phase III communities are given the lowest priority for consideration of neighborhood park acquisition and development. This is due to the fact that these neighborhoods will be the last to open for residential development within the City and that ample land should be available at the time that the area is opened. As stated earlier, if for some reason the situation were to change, then there must be a reconsideration of the priorities. Because of the amount of existing development which had previously taken place in some Phase III neighborhoods, first consideration should be given to existing deficiencies prior to the satisfaction of future deficiencies.

Priority No. 1 - Wells Neighborhood Nos. 1, 2 and 3 (Existing Deficiencies)

Because of the existing residential development within this community and the close proximity of the three neighborhoods, a total deficiency of 4.98 acres currently exists. Due to the nature of the Phasing Plan and the intent of the Park and Recreation Element to conform with that plan, the satisfaction of that deficiency remains at the Phase III priority level. It should be noted, however, that none of the three neighborhoods have any existing available park or school acreage and thus creates a deficiency which is greater than many Phase I and Phase II neighborhoods.

Because of the close proximity of the Wells neighborhoods to one another and the lack of available land in Neighborhood No. 2, it is recommended that a single park site be located in either Neighborhood No. 1 or No. 3 in order to serve existing park needs of all three neighborhoods. The park should be located in such a manner as to allow for park acreage expansion due to projected future needs within this community.

Priority No. 2 - Saticoy Neighborhood No. 3 (Existing and Future Deficiencies)

Because the existing deficiency of 1.65 acres could not justify a standard sized neighborhood park, both existing and future deficiencies are combined within this priority. As such, a deficiency of 4.17 acres has been identified. When developed, Saticoy Neighborhood No. 3, which is generally south of Telephone Road, will require park acreage in order to satisfy future, as well as existing park needs. It is anticipated that the future population could place a demand for a moderate sized neighborhood park. Because of the substantial amount of available land, it is recommended that an adequate sized park in a centrally located area be provided in conjunction with future residential development of this area.

Priority No. 3 - Wells Neighborhood Nos. 1, 2 and 3 (Future Deficiency)

Future development potential in all three neighborhoods creates an additional 4.01 acre deficiency in the Wells Community. Due to the practicality of providing three smaller park sites, it appears that a single larger park site, as indicated in Priority No. 1, which would be centrally located to all three neighborhoods would better serve the future park needs of the entire community. It is, therefore, recommended that such a site be acquired in such a manner as to allow for future expansion in order to accommodate projected acreage needs and be developed in conjunction with any future residential development which may occur in the Wells Community.

Service Area Parks

Service area parks fulfill a need that neighborhood parks, because of size and development limitations, cannot. These parks are normally larger in size, and designed and developed in such a manner as to provide a wider range of recreation opportunities. The satisfaction of the City's special facility needs is also closely aligned with the service area park concept. Because the need for service area parks is contingent upon factors in addition to gross acreage figures, special consideration must be given to developing priorities for an acqusition and development program. Factors which must be taken into consideration include the impact of the City's Phasing Plan, examination of the County's potential for developing Saticoy Regional Park, and the analysis of the City's special facility needs. Once these considerations have been thoroughly reviewed, it will be possible to develop a set of recommendations relative to the acquisition and development priorities for service area parks.

It is anticipated that there is going to be a need for additional service area parks, but their form and size will be dependent upon the factors as discussed above in addition to the identified acreage deficiencies.

POLICY STATEMENTS

The goals, objectives and policy statements of the Park and Recreation Element are interrelated in the respect that they are designed as a means to achieve a comprehensive park and recreation system for the City of San Buenaventura. These policy statements reconfirm and establish specific policy positions for the City. The following statements are hereby adopted and incorporated as part of the Park and Recreation Element. These policy statements shall guide the Department of Parks and Recreation in its quest to satisfy the deficiencies identified within the Park and Recreation Element. The policy statements are designed to offer the process by which goals and objectives, as herein established, may be met. These policy statements should be reviewed and reconfirmed in conjunction with the biannual review of the Park and Recreation Element.

Policy Statement - Commercial Recreation Facilities

Commercial recreation facilities are important in meeting the recreation needs of local residents. Tennis clubs, theaters and golf driving ranges are examples of the commercial recreation facilities available to Ventura residents. The City shall encourage the development of such facilities to supplement publicly provided facilities.

Policy Statement - Funding Sources

The City shall continue to pursue outside sources of funding, e.g., state and federal recreation and park area and facility grants. In this respect, the City shall support the enactment of state and federal legislation that would establish park and recreation acquisition and development funds that could benefit the citizens of Ventura.

Policy Statement - Land Use

The City shall encourage the interim use of vacant, commercial and industrial zoned land for recreational purposes and should offer assistance to local organizations, e.g., Little League, American Youth Soccer Organization, etc., in negotiating leases on such land. Utilization of these lands for recreational purposes allows them to remain productive while being held for future development. Moreover, this use reduces the pressure on existing public facilities.

Policy Statement - Nonprofit Corporation

The City supports the establishment of a public non-profit corporation with the purpose of promoting and supporting park and recreation services for the general public.

Policy Statement - Development Alternatives

The City recognizes the need to provide neighborhood park and recreation areas and facilities in conjunction with populations generated by new development and that the provision of those neighborhood areas and facilities should be the primary responsibility of the developer and that the developer should also be responsible for satisfying a prorated share of service area and city-wide park deficiencies. To accomplish this, the City Council recognizes and confirms the following:

A. The City shall establish acquisition and development standards and shall require residential developers to accept the responsibility for the provision of park and recreation areas and facilities pursuant to those standards. The developers' responsibility shall be met by way of the following:

   1. Through the Park and Recreation Facility Development Fee;

   2. Through a "Quimby Act" Ordinance as provided for in Government Code §66477. (With such implementation, it is recognized that more specific site locations will be identified as developments are proposed.); and/or

   3. Through a Subdivision Area and Facility Formula that credits a developer for providing City approved neighborhood developments that satisfy park and recreation facility deficiencies identified in the Park and Recreation Element.

B. The City recognizes that the linear circulation/park system, including hillside trails, is a valuable and appropriate recreation/transportation system in and of itself.

C. Hiking trails and bike paths shall be provided as a condition of development wherever feasible to provide connections with a designated linear circulation/park system trail, including the hillside area. In addition, a proposed trail system shall be designated on the Hillside Land Use and Phasing Map, and appropriate dedication and improvement to create same shall be required in conjunction with Phase I, Hillside Development.

Policy Statement - Special Facility Needs

In order to meet future special facility needs, the City shall recognize and promote cooperative agreements between the private and public sectors in the provision of special recreation facilities.

Policy Statement - Street Tree Program

The City reconfirms its position that the Street Tree Program is an important facet in the improvement of the community.

Policy Statement - Nature Interpretation

The City recognizes the need for the interpretation of unique natural resources in the urban environment and supports this concept.

Policy Statement - Acquisition and Development Schedule

Based on recommended priorities as set forth in this document, the City Council, in conjunction with the Parks and Recreation Commission, will annually review the acquisition and development schedule of neighborhood and service area parks through the Capital Improvement Program.

Policy Statement - Cultural Needs

The City shall promote and support private, nonprofit public, and public programmatic and facility development that leads to the satisfaction of community needs in the area of enlightenment and excellence of the quality of life, particularly with regard to the arts, humanities, the broad application of the sciences, customs, and artifacts.

Policy Statement - Safety in Design and Development

The City recognizes the need for safety in the design and development of park areas and facilities, and, as such, will actively promote and support federal, state, and local safety standards relating to the design and development of park areas, recreation facilities, play equipment, plant materials, and other appropriate development features.

Policy Statement - Park Acreage Standards

The City recognizes the need to establish park acreage standards for the purposes of 1) establishment of adequate park areas; 2) a means of identifying acreage deficiencies, thereby enhancing the City's potential for additional state and federal funding.

To accomplish this, the City Council establishes the following park acreage standards for the City of San Buenaventura.

A. Neighborhood Parks - 1.5 acres per 1,000 population
B. Service Area Parks - 2.0 acres per 1,000 population
C. City-Wide Parks - 5.0 acres per 1,000 population

RESOLUTION NO. 79-109

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING THE PARK AND RECREATION ELEMENT AS PART OF THE CITY'S COMPREHENSIVE PLAN

BE IT RESOLVED by the Council of the City of San Buenaventura as follows:

SECTION 1: The City Council has conducted a public hearing, upon notice, and has reviewed, studied and considered the following information:

1. Park and Recreation Element of the Comprehensive Plan of the City of San Buenaventura, Part I - Workbook.

2. Goals, Objectives, Policies and Acquisition and Development Priorities of the Park and Recreation Element, Part II.

3. The recommendation of the Parks and Recreation Commission.

4. Written and oral testimony of interested citizens, developers, and property owners.

5. Other miscellaneous reports and all other information and data presented during the course of public hearings relative to the Park and Recreation Element.

SECTION 2: The Council hereby adopts the Park and Recreation Element of the Comprehensive General Plan which consists of the the "Goals, Objectives, Policies, and Acquisition and Development Priorities of the Park and Recreation Element" incorporated herein by reference.

Passed and adopted this 23rd day of July, 1979.

Barbara J. Kam
City Clerk

79-109/62

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. Kam, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 23rd day of July, 1979, by the following vote:

AYES: Councilmembers Garrett, Monahan, Chaudier Harrington, Ellison, McWherter and Henson.

NOES: None.

ABSENT: None.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 24th day of July, 1979.

Barbara J. Kam
City Clerk

ORDINANCE NO. 83-33

AN ORDINANCE ADDING SECTIONS 8233 - 8233.6
TO THE CITY OF SAN BUENAVENTURA ORDINANCE
CODE RELATING TO THE RESERVATION OF LAND
FOR PARK AND RECREATION USE

The Council of the City of San Buenaventura does ordain as follows:

SECTION 1: Sections 8233 through 8233.5 are hereby added to the City of San Buenaventura Ordinance Code to read as follows:

"Section 8233 - Purpose. The following provisions are enacted pursuant to the authority granted by Sections 66479-66482 of the Government Code of the State of California.

Section 8233.1 - Requirements. As a condition of approval of a tentative map or parcel map, the subdivider shall reserve sites, as required, appropriate in area and location for parks according to the standards and formulas adopted in the Park and Recreation Element of the City's Comprehensive Plan.

Section 8233.2 - Standards and Formula. If a park deficiency is specified in the adopted Park and Recreation Element of the Comprehensive Plan, the subdivider may be required to reserve sites as determined by the City in accordance with the principles and standards contained in the adopted Plan. The reserved areas shall be of such size and shape as to permit the balance of the property within which the reservation is located to develop in an orderly and efficient manner. The amount of land to be reserved shall not make development of the remaining land held by the subdivider economically unfeasible. The reserved area shall conform to the adopted Plan and shall be in such multiples of streets and parcels as to permit an efficient division of the reserved area if it is not acquired within the prescribed period.

Section 8233.3 - Procedures for Acquisition of Reserved Land. The City shall, at the time of the approval of the final map or parcel map, enter into an agreement with the developer to acquire the reserved area within two (2) years after the completion and acceptance of all improvements by the City, unless the period of time is extended by mutual agreement. The purchase price shall be the market value of the reserved area at the time of the filing of the tentative map or parcel map, plus the taxes against such reserved area from the date of the reservation and any other reasonable costs incurred by the subdivider in the maintenance of the reserved area, including any applicable interest costs incurred on any loan covering the reserved area.

Section 8233.4 - Termination. If the City does not enter into a binding agreement as provided above, the reservation of the area shall automatically terminate.

Section 8233.5 - Authority. The authority to reserve and acquire areas for parks hereunder is in addition to, and not a limitation on, all other authority of the City relative to provision of park and recreation facilities."

SECTION 2: If any provision of any section of this Ordinance or the application thereof to any person or circumstance is held invalid, it is the intent of the Council that the invalidity shall not affect provisions or applications which can be given effect without the invalid provision or application and to this end the provisions of each section of this Ordinance are severable.

SECTION 3: This Ordinance shall take effect on the 31st day after final passage and adoption. Its provisions shall be applicable in accordance with Government Code section 66479(b).

PASSED AND ADOPTED THIS 22nd day of August, 1983.

John T. McWhester
Mayor

Attest:

Barbara J. Kam
City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Ordinance was passed and adopted by the City Council of said City at a regular meeting thereof, held on the 22nd day of August, 1983 by the following vote, to wit:

AYES: Councilmembers Sullard, Longo, Chaudier, Henson, Orrock and McWherter.

NOES: None.

ABSENT: Councilman Monahan.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 23rd day of August, 1983

Barbara J. Kam
City Clerk

83-33/70

ORDINANCE NO. 83-32

AN ORDINANCE ADDING SECTIONS 8232-8232.13 TO THE CITY OF SAN BUENAVENTURA ORDINANCE CODE REQUIRING THE DEDICATION OF LAND AND/OR PAYMENT OF FEES FOR PARK AND RECREATION PURPOSES IN CONNECTION WITH NEW RESIDENTIAL DEVELOPMENT (QUIMBY ACT)

The Council of the City of San Buenaventura does ordain as follows:

SECTION 1. Sections 8232 through 8232.13 are hereby added to the City of San Buenaventura Ordinance Code to read as follows:

"Section 8232 - Purpose. The following provisions are enacted pursuant to the authority granted by Section 66477 of the Government Code of the State of California. The Park and Recreation purposes for which dedication of land and/or payment of fees is required pursuant to the following sections are in accordance with the adopted Park and Recreation Element of the Comprehensive Plan of the City of San Buenaventura. The land and fees received under these provisions are to be used only for the purpose of providing park and recreation areas, facilities and services in accordance with applicable law. Any fees received will be deposited in the Park and Recreation Facilities Fund. These provisions may be referred to as the City's "Quimby Ordinance."

Section 8232.1 - Requirements. At the time of approval of a tentative map or parcel map, the City Council shall determine as a condition of approval of a final subdivision map or parcel map for residential purposes, if the subdivider shall dedicate land, pay a fee in lieu thereof, or both, at the option of the City, for park or recreation purposes at the time and according to the standards and formula hereinafter set forth.

Section 8232.2 - Relation of Land Required to Population Density. Based upon the standards adopted in the Parks and Recreation Element of the City's Comprehensive Plan, and by resolution of the City Council, it is hereby found and determined that the public interest, convenience, health, welfare and safety require that 3.5 net acres of public neighborhood and community parkland for each one thousand persons residing within the City shall be the established land dedication standard for the purpose of this Quimby Ordinance.

Section 8232.3 - Estimated Population. The amount of land to be dedicated or fees to be paid shall be based upon the estimated residential population of the subdivision which shall be determined on the basis of zoning and the approved tentative map or parcel map and the average household size as used in the Air Quality Management Plan Standards.

Density categories consistent with AQMP standards and unit population factors adopted by the Council under separate resolution are assigned for the following residential units:

a) Single-family dwelling (detached dwellings)
b) Condominium, townhouses (attached dwellings)
c) Apartments
d) Mobile homes

Section 8232.4 - Development Density - Determination. The basis for determining the total number of dwelling units shall be the number of such units permitted by the City on the land included within the proposed subdivision at the time the City approves a tentative map or parcel map.

Section 8232.5 - Determination of Land Dedication and/or Payment of In Lieu Fees. The City Council shall determine as part of the approval of the tentative map or parcel map whether the City will accept land dedication or elect to require payment of a fee in lieu thereof, or a combination of both. The determination of the City as to whether land shall be dedicated, or whether a fee shall be charged, or a combination thereof, shall be final and conclusive. Said determination shall be made based upon, but not limited to, consideration of the following:

A. The Park and Recreation Element of the City's Comprehensive Plan;

B. The topography, geology, access and location of land in the subdivision available for dedication;

C. The size and shape of the subdivision and land available for dedication;

D. The location of existing or proposed park sites and circulation systems;

E. If the proposed subdivision contains 50 parcels or less, the subdivider may only be required to pay a fee, as determined pursuant to Section 8232.7;

Section 8232.6 - Land Dedication Formula. Where park land requirements have been identified in the Park and Recreation Element of the Comprehensive Plan of the City and the required area is located in whole or in part within a proposed subdivision, the subdivider shall dedicate such land as determined by the City for parks. The following shall constitute the formula for the minimum dedication of land:

Average number of persons per unit -

$$\frac{\text{DU X Average household size (projected population)}}{\text{1000 population}} \text{ X S} = \text{required park land dedication}$$

DU = Total number of Dwelling Units permitted
S = Park Acreage Standard (as determined by City Council resolution)
Land calculation shall be to the nearest one tenth of an acre.

Section 8232.7 - Amount of Fees in Lieu of Land Dedication. When a fee is to be paid in lieu of land dedication, the amount of such fee shall be based upon the average per acre, fair market value of the entire subdivision from which land which would otherwise be required to be dedicated pursuant to the formula in Section 8232.6.

The fair market value shall be determined by an appraiser acceptable to the City. The date of the appraisal shall be immediately prior to the filing of the final map. If more than six months elapses prior to filing the final map, the City will prepare a new appraisal. The subdivider shall pay for the cost of any such reappraisal. For the purposes of this section, fair market value shall be determined in accordance with acceptable practices of the American Right of Way Association.

If the subdivider disagrees with the determined fair market value, the subdivider may appeal to the City Council which shall hear the appeal under the same rules and procedures applicable to zoning matters appealed to the City Council. The burden of proof shall lie with the subdivider.

Section 8232.8 - Conveyance of Land and/or Payment of In Lieu Fees. In subdivisions of over 50 parcels the following procedures shall govern the conveyance of land and/or payment of in lieu fees:

A. Where a dedication of land is required, it shall be accomplished in accordance with the provisions of the Subdivision Map Act of the State. Real property dedicated under the provisions of this Quimby Ordinance shall be conveyed by grant deed, free and clear of encumbrances, to the City. Deeds required shall be given to the City at the time the final subdivision map or final parcel map, for which the deeds are given, is submitted to the City Engineer for approval by the City. The deed shall be held in trust by the City until such time as the final map or final parcel map is approved, rejected or withdrawn by the subdivider. If a map is rejected by the City or withdrawn by a subdivider prior to the City's approval, the deed shall be returned to the subdivider. If the map is approved, the deeds received may be recorded by the City. The subdivider shall pay all fees and provide instruments required to convey the land plus a preliminary title report and title insurance in favor of the City in an amount equal to the value of the property being conveyed.

B. Where the City has determined that a fee shall be paid in lieu of dedication of land, said fee shall be deposited with the City at the time the final map is submitted to the City Engineer for approval by the City.

C. At the City's discretion a combination of dedication of land and payment of fees may be required. When only a portion of land required for dedication is determined necessary, the balance of the computed dedication shall be paid in fees.

Section 8232.9 - Time Schedule for Use of Land/Fees. The City shall develop a schedule specifying how, when and where it will use the land and/or fees, to develop park and recreation facilities. Any fees collected under this Quimby Ordinance shall be committed within five years after the payment of such fees or the issuance of building permits on one-half of the lots created by the subdivision, whichever occurs later. If such fees are not committed, they shall, less an administrative charge, be distributed and paid to the record owners of the subdivision in the same proportion that the size of their lot bears to the total area of all lots in the subdivision.

Section 8232.10 - Credit for Private Park and Recreation Area. No credit shall be given for the value of private park and recreation area (i.e., that portion of property within a subdivision that has been voluntarily provided by the subdivider) in the subdivision except as hereinafter provided. Where private park and recreation area usable for active neighborhood recreational purposes, is provided for in a planned development or real estate development, as defined in Sections 11003 and 11003.1 of the Business and Profession Code, respectively, partial credit, not to exceed 50% of the full park requirements, may be given against the requirement of land dedication or payment of fees in lieu thereof, if the City Council finds that it is in the public interest to do so and that all the following standards are met:

a. Yards, court areas, setbacks, and other open areas required by zoning or building ordinances and regulations shall not be included in the computation of such private open space; and

b. The private park and recreation area shall be owned by a Homeowner's Association composed of all property owners in the subdivision and be an incorporated, non-profit organization capable of dissolution only by 100% affirmative vote of the membership, operated under recorded land agreements to which each lot owner in the neighborhood is automatically a member, and each lot is subject to a charge for proportionate share of expenses for maintaining the area; and

c. That the use of the private park and recreation area is restricted for park and recreation purposes by recorded covenant which runs with the land in favor of the future owners of the property and which cannot be defeated or eliminated without the consent of the City; and

d. That the proposed private park and recreation area is reasonably adaptable for use for neighborhood park and recreation purposes, taking into consideration such factors as size, shape, topography, geology, access, and location; and the provisions of the Park and Recreation Element of the Comprehensive Plan; and

e. That recreation facilities proposed for the private park and recreation area are in substantial accordance with the provisions

of the Park and Recreation Element of the Comprehensive Plan; and,

f. That with the crediting of private park and recreation area, any deficiencies created for present or future park needs shall be considered met by the developer and, the City shall have no responsibility to develop a neighborhood park to meet the needs of residents in said subdivision now or in the future.

The determination of the City as to whether credit shall be given and the amount of credit shall be final and conclusive.

Section 8232.11 - Exceptions

Subdivisions containing less than five parcels and not used for residential purposes, shall be exempted from the requirements herein set forth; provided that a condition is hereby placed on the approval of each such map that if a building permit is requested for residential use on one or more of the parcels within four years of the recording of the map, the fee shall be required to be paid as a condition precedent to the issuance of such a permit.

The provisions of this Quimby Ordinance do not apply to (1) commercial or industrial subdivisions; (2) condominium projects or stock cooperatives which consist of subdivisions of air space in an existing apartment building which is more than five years old when no new dwelling units are added; (3) conversion of a mobile home park which is more than five years old at the time of conversion to a project with individually owned lots so long as no additional dwelling units are added.

Section 8232.12 - Subdivider Provided Park and Recreation Improvements. The value of park and recreation improvements provided by the subdivider to the dedicated land shall be credited against the fees or dedication of land required. The City reserves the right to approve such improvements and the value of such improvements prior to agreeing to accept the dedication of land and to require in lieu fee payment should the land and improvements be unacceptable for any reason.

Section 8232.13 - Access. All land offered for dedication to local park or recreational purposes shall have access and frontage adjacent to at least one existing or proposed public street."

SECTION 2. If any provision of any section of this Ordinance or the application thereof to any person or circumstance is held invalid, it is the intent of the Council that the invalidity shall not affect provisions or applications which can be given effect without the invalid provision or application and to this end the provisions of each section of this Ordinance are severable.

SECTION 3. This Ordinance shall take effect on the 31st day after final passage and adoption. Its provisions shall be appliable in accordance with Government Code Section 66477(a).

PASSED AND ADOPTED this 22 day of August, 1983.

John P. McWherter
Mayor

ATTEST:

Barbara J. Kam
City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Ordinance was passed and adopted by the City Council of said City at a regular meeting thereof, held on the 22nd day of August, 1983 by the following vote, to wit:

AYES: Councilmembers Sullard, Longo, Chaudier, Henson, Orrock and McWherter.

NOES: None.

ABSENT: Councilman Monahan.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 23 day of August, 1983.

Barbara J. Kam
City Clerk

COMPREHENSIVE PLAN AMENDMENT PROCEDURE

SECTION IX

COMPREHENSIVE PLAN AMENDMENT PROCEDURES

INTRODUCTION

The City of Ventura's Comprehensive Plan is a document designed to be flexible in order to accommodate the changing policies, goals, and needs of the community. In keeping with this intent, the City Council has adopted procedures and requirements for the processing and review of comprehensive plan amendment requests. This includes the Prescreening Process adopted by the City Council in July, 1985.

RESOLUTION NO. 85-105

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA REVISING RESOLUTION 78-11 RELATIVE TO THE PROCESSING AND REVIEW OF COMPREHENSIVE PLAN AMENDMENT REQUESTS SPECIFICALLY TO ESTABLISH A PRELIMINARY SCREENING PROCESS FOR COMPREHENSIVE PLAN AMENDMENT REQUESTS

BE IT RESOLVED by the City Council of the City of San Buenaventura, that Resolution 78-11 be revised as follows:

SECTION 1: Purpose. The purpose of the procedures and requirements set forth in this Resolution is to provide an orderly procedure and to establish an effective review process for the consideration of amendments to the Comprehensive Plan of the City of San Buenaventura.

SECTION 2: Application. With the exception of the matters set forth in Section 8 hereafter, the provisions of this Resolution shall apply to all amendment requests not considered to be in process prior to the date of adoption of this Resolution.

SECTION 3: Definitions. The following definitions shall apply throughout this Resolution:

a. Comprehensive Plan. The term "Comprehensive Plan" of the City of San Buenaventura as used herein means the "Comprehensive Plan" adopted by the City, including all adopted comprehensive plan elements.

b. Planning Division. "Planning Division" means the Planning Division of the Department of Community Development.

c. Environmental Impact Report Committee (EIR Committee). The "Environmental Impact Report Committee" is the committee referred to in Resolution No. 85-75 and is composed of the Director of Community Development, the Director of Public Works, and the Assistant City Manager, or their designated representatives.

SECTION 4: Applicability of Procedures. The procedures specified in this Resolution shall apply to all amendments to the Comprehensive Plan of the City of San Buenaventura including, by way of example and without limitation, the following specific types of amendments:

a. Changes in designated land use.

b. Changes in phasing designation.

c. Requests for average density in excess of that designated.

d. Deviations from specific Intent and Rationale Statements or other associated adopted policies.

e. Changes in the designated circulation system (additions, relocations, or deletions).

While the foregoing examples would apply primarily to the Land Use/Circulation Element, comparable amendments to other elements of the Comprehensive Plan shall be similarly subject to the procedures set forth in this Resolution.

SECTION 5: Initiation of Comprehensive Plan Amendment Processing. All proposed projects shall be reviewed by the Environmental Impact Report Committee for consistency with the Comprehensive Plan in accordance with established EIR procedures as set forth in Resolution 85-75 of the City Council as the same presently exists and as it may be amended from time to time. A determination by the EIR Committee that the proposed project is inconsistent with the Comprehensive Plan will make it necessary to follow the amendment process described herein before the proposed project can be further processed. Decisions of the EIR Committee finding that there is a need for a Comprehensive Plan amendment in connection with a proposed project shall be appealable to the Planning Commission as hereinafter set forth.

Notice of a decision of the EIR Committee that a Comprehensive Plan Amendment will be necessary in connection with a proposed project shall be given to the applicant by mail and shall be published once in a local newspaper of general circulation. Any interested person may appeal the Committee's determination within ten (10) days from the day the Notice of Decision is published by filing a letter with the Planning Division, and paying a filing fee of $50.00.

Upon the filing of an appeal, the Planning Commission shall set a hearing date at its next regularly scheduled meeting. Said hearing date shall be not less than 14 days nor more than 40 days after the filing of the notice of appeal. This limit may be extended by the mutual consent of the applicant and the Commission.

Public notice of the date, time, place and purpose of the hearing shall be published not less than ten (10) days prior to the hearing in a newspaper of general circulation in the City.

At the hearing, the Planning Commission shall determine by a majority vote of the members present and voting whether the decision of the EIR Committee should be sustained (i.e., whether the project, as proposed, would require an amendment to the Comprehensive Plan). If no majority of the members present and voting can be achieved on the issue, the appeal shall be deemed denied and the decision of the EIR Committee shall be deemed upheld. The action of the Planning Commission on the appeal shall be final with respect to the question of whether or not a request for an amendment of the Comprehensive Plan will have to be processed before the processing of the proposed project can proceed.

No specific project applications will be accepted for processing until and unless it has been finally determined that a Comprehensive Plan amendment is not necessary.

SECTION 6: Comprehensive Plan Amendment Processing Dates and Submittal Deadlines. Comprehensive Plan Amendment Requests will be processed at public hearings on a regular basis twice each year on the third Tuesday in January and the third Tuesday of July. All amendment requests to be heard in July of each year must be submitted by the preceding January 15, and all requests to be heard in January of each year, must be submitted by the preceding July 15. In any year in which the foregoing deadlines fall on a Saturday, Sunday or holiday, the deadline shall be deemed to be the next City business day that is not a Saturday, Sunday or holiday. In order to be considered complete, a request for a Comprehensive Plan Amendment must include all items outlined in the application for a Comprehensive Plan Amendment approved by the Director of Community Development. By this Resolution, the Director of Community Development is authorized to develop any necessary forms and administrative procedures as may be necessary to implement and carry out this Resolution. All forms and administrative procedures, and all changes therein, shall be subject to review by the City Council as the Council may direct.

SECTION 7: Preliminary Screening. All applications for Comprehensive Plan Amendments will be brought before the City Council with a staff recommendation as to whether or not the applications should be initially rejected. Those applicants' requests which are rejected for processing will be refunded their deposit fees and returned their applications. Those which are not initially rejected will proceed through the City's established Comprehensive Plan Amendment process, although such authorization to proceed does not imply ultimate approval.

Criteria for Screening Amendment Requests:

A. The following criteria are intended to be used by staff in making recommendations to the City Council on Comprehensive Plan Amendment requests. The City Council will evaluate the staff recommendations and any other factors it finds appropriate in approving or denying the requests for processing. If a Comprehensive Plan Amendment request consists of several components, the City Council may approve or reject, without prejudice, any portion of the request for processing.

B. Criteria to be used by staff in recommending that Comprehensive Plan Amendment requests be approved for processing are as follows:

   1. When the proposed amendment request has a potential for conformity with all applicable goals and policies of the Comprehensive Plan.

   2. When the proposed amendment request has a potential for compatibility with either existing or planned uses in the area.

   3. When the proposed amendment request is in conformity with other City Council adopted policies.

C. Criteria to be used by staff in recommending that Comprehensive Plan Amendment requests be rejected for processing are as follows:

1. When the proposed amendment request shares significant similarities with other amendments located in the same general area which have been previously considered and denied by the City Council within the last 24 months.

2. When the proposed amendment request site is located in an area where the City Council has directed the preparation of a land use study scheduled for a public hearing withing the next 18 months.

3. When the proposed amendment request is located in an area where a newly adopted plan or similar land use policy document has been in effect for less than 12 months.

4. When the proposed amendment is located in a specific area where a specific existing land use policy has been reaffirmed by the City Council within the past 12 months.

5. When the proposed amendment request would create an "island" or spot land use designation inconsistent with the intent and policies of the Comprehensive Plan, and density or land uses of surrounding properties.

SECTION 8: Exception of City-Initiated Actions. In order to allow for an effective public hearing process for all amendments, and to facilitate the continued refinement and completion of the City's Comprehensive Plan, the following studies and City-initiated Comprehensive Plan amendments are hereby excepted from the procedures and requirements set forth in this Resolution.

a. City-initiated efforts in Special Study Areas.
b. The Hillside Management Program.
c. The Local Coastal Program.
d. The Parks Element.
e. The Housing Element.
f. The Historical Element.
g. Any other mandated or elective studies which are determined to constitute an amendment to the Comprehensive Plan.

SECTION 9: Fees. Refer to the City's Fee Schedule, as adopted by City Council resolution, for applicable Comprehensive Plan fees. Said fees shall be paid for the processing of all Comprehensive Plan amendment requests at the time the amendment request is filed. If a Comprehensive Plan Amendment request is rejected by the City Council for further processing, the application fee will be refunded to the applicant.

SECTION 10: Amendment Review Guidelines. In reviewing amendment requests to the Comprehensive Plan, the Planning Commission and City Council will generally consider the following issues in determining the appropriateness of a plan amendment from the standpoint of the general public welfare:

a. From an overall perspective, is the requested amendment consistent with and reflective of the goals, policies, and intent of the Comprehensive Plan or of the particular Element in question?

b. Does the request result from and/or reflect changes in the goals and policies or other pertinent factors not in effect at the time of adoption of the particular Element in question?

c. Is the request the result of an element or condition not initially considered at the time of the adoption of the particular Element?

d. Have naturally occurring physical, social, or economic factors or changes made the plan designation or policy statement, etc., in question, infeasible or inappropriate from the standpoint of the general public welfare?

e. Is the requested amendment compatible with the land use designation and policies applicable to surrounding areas?

f. Do alternative sites that would not require an amendment exist which will accommodate the uses proposed by the amendment request?

g. Will a precedent be set by granting the requested amendment?

h. Are there reasons that a change in the Comprehensive Plan would be in the public interest?

Specific development proposals will not be considered in evaluating amendment requests. The rationale for the existing plan designation and/or policy will generally be an additional factor that will be considered.

SECTION 11: Requirement for Cumulative Environmental Impact Report and Staff Report. To the extent that individual amendment requests are determined to necessitate preparation and consideration of an EIR, a comprehensive, cumulative EIR will be prepared by the Planning Division (or by an approved consultant) for all such requests accumulated to be processed at an established amendment hearing, as outlined in Section 6 of this Resolution. Preparation costs will be divided among all affected applicants on an acreage basis, to be collected prior to authorization for EIR preparation. Any applicant failing to pay the pro rata share upon request shall be excluded from coverage in the EIR and from further processing. If costs above those originally estimated for the preparation of the EIR are created by changes in the proposal of any applicant, those costs shall be borne solely by the applicant involved. The cumulative EIR will function only for the purpose of evaluating amendment requests and will normally not be considered adequate for subsequent evaluation of specific development projects. In the event that the number and type of amendment requests received for a particular processing do not, in the judgment of the EIR Committee, warrant the preparation of a cumulative EIR, a negative declaration may be granted or other

appropriate action taken pursuant to the City's EIR processing procedures and applicable law. A staff report will be developed for all amendment requests.

SECTION 12: Major Steps for Processing Comprehensive Plan Amendments. The following will be utilized for processing Comprehensive Plan amendments:

I. Submittal of application for Comprehensive Plan amendment to Planning Division in accordance with submittal requirements.

II. Processing of the amendment request in accordance with the preliminary screening procedures.

III. Unless rejected from further processing, processing should continue in accordance with EIR procedures and applicable law. Development of Environmental Impact Report and public review, if applicable.

IV. Development of final EIR, if applicable, and staff report.

V. Consideration by appropriate City advisory boards or commissions.

VI. Planning Commission public hearing and recommendation to City Council.

VII. City Council public hearing and final determination.

PASSED AND ADOPTED this 22nd day of July, 1985.

City Clerk

AC/lm/201

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS
CITY OF SAN BUENAVENTURA)

I, BARBARA J. KAM, City Clerk of the City of San Buenaventura, do hereby certify that the above and foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting held on the 22nd day of July , 1985, by the following vote:

AYES: Councilmembers Burns, Chaudier, McWherter, Longo, and Orrock.

NOES: Councilmembers Sullard and Monahan.

ABSENT: None.

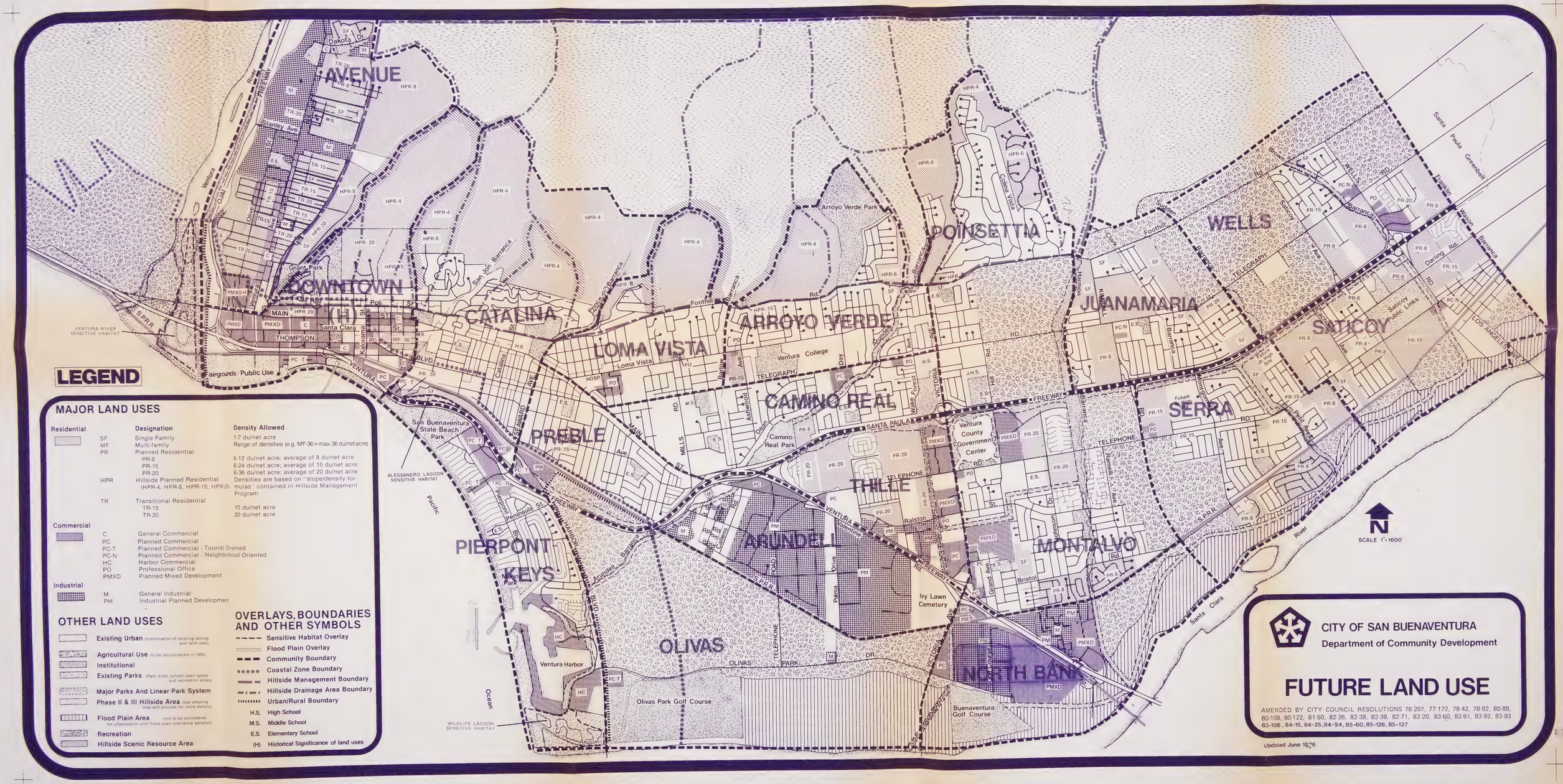
IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 23rd day of July , 1985.

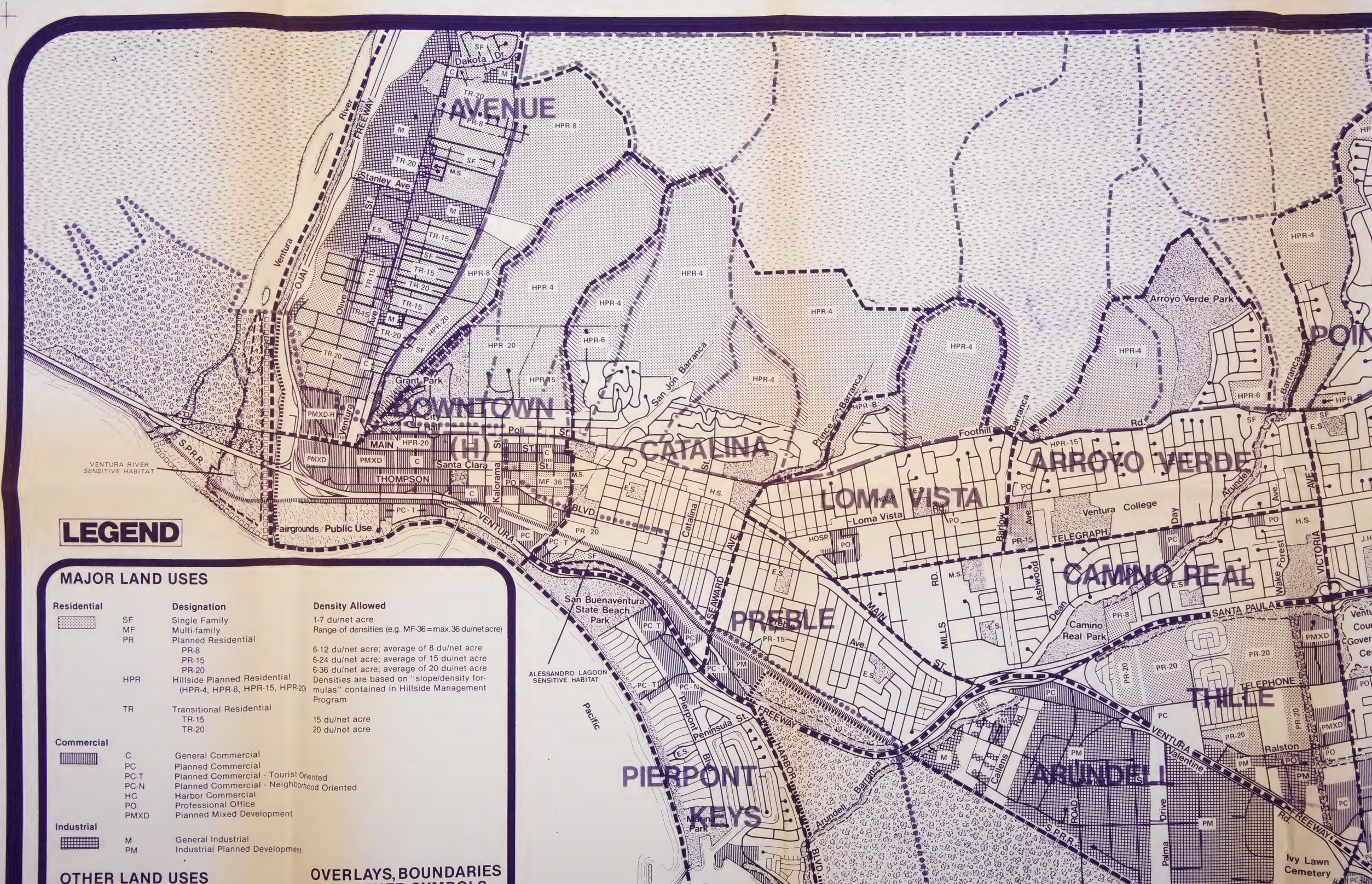
Barbara J. Kam
City Clerk

MAPS

SECTION X


PR-8
PR-8
PR-8
PR-15
ure
High
Site
Ave.
SF
PR-15
PR-8
PR-15
Petit Ave.
PR-8
GELES AVE.
River
N
SCALE 1"=1600'


AVENUE
DOWNTOWN
CATALINA
LOMA VISTA
ARROYO VERDE
POINSETTIA
WELLS
JUANAMARIA
SATICOY
SERRA
CAMINO REAL
PREBLE
THILLE
ARUNDELL
PIERPONT
KEYS
OLIVAS
MONTALVO
NORTH BANK
LEGEND
MAJOR LAND USES
Residential
SF Single Family
MF Multi-family
PR Planned Residential
PR-8
PR-15
PR-20
HPR Hillside Planned Residential (HPR-4, HPR-8, HPR-15, HPR-20)
TR Transitional Residential
TR-15
TR-20
Density Allowed
1-7 du/net acre
Range of densities (e.g. MF-36=max.36 du/net acre)
6-12 du/net acre; average of 8 du/net acre
6-24 du/net acre; average of 15 du/net acre
6-36 du/net acre; average of 20 du/net acre
Densities are based on "slope/density formulas" contained in Hillside Management Program
15 du/net acre
20 du/net acre
Commercial
C General Commercial
PC Planned Commercial
PC-T Planned Commercial - Tourist Oriented
PC-N Planned Commercial - Neighborhood Oriented
HC Harbor Commercial
PO Professional Office
PMXD Planned Mixed Development
Industrial
M General Industrial
PM Industrial Planned Development
OTHER LAND USES
Existing Urban (continuation of existing zoning and land uses)
Agricultural Use (to be reconsidered in 1990)
Institutional
Existing Parks (Park sites, school open space and recreation areas)
Major Parks And Linear Park System
Phase II & III Hillside Area (see phasing map and policies for more details)
Flood Plain Area (not to be considered for urbanization until flood plain ordinance adopted)
Recreation
Hillside Scenic Resource Area
OVERLAYS, BOUNDARIES AND OTHER SYMBOLS
Sensitive Habitat Overlay
Flood Plain Overlay
Community Boundary
Coastal Zone Boundary
Hillside Management Boundary
Hillside Drainage Area Boundary
Urban/Rural Boundary
H.S. High School
M.S. Middle School
E.S. Elementary School
(H) Historical Significance of land uses
VENTURA RIVER SENSITIVE HABITAT
ALESSANDRO LAGOON SENSITIVE HABITAT
WILDLIFE LAGOON SENSITIVE HABITAT
Fairgrounds/Public Use
Ventura Harbor
Olivas Park Golf Course
Buenaventura Golf Course
Ivy Lawn Cemetery
Ventura College
Ventura County Government Center
Arroyo Verde Park
Camino Real Park
San Buenaventura State Beach Park
Grant Park
Saticoy Public Links
Santa Paula Greenbelt
Ocean
Pacific
Ventura River
Santa Clara River
SCALE 1"=1600'
CITY OF SAN BUENAVENTURA
Department of Community Development
FUTURE LAND USE
AMENDED BY CITY COUNCIL RESOLUTIONS 76-207, 77-172, 78-42, 78-92, 80-88, 80-109, 80-122, 81-50, 82-26, 82-38, 82-39, 82-71, 83-20, 83-60, 83-91, 83-92, 83-93 83-106, 84-15, 84-25, 84-94, 85-60, 85-126, 85-127
Updated June 1986


AVENUE
DOWNTOWN
CATALINA
LOMA VISTA
ARROYO VERDE
CAMINO REAL
PREBLE
PIERPONT
KEYS
ARUNDELL
THILE
Dakota Dr.
Stanley Ave.
Olive Ave.
Ventura River
OJAI FREEWAY
Grant Park
MAIN
THOMPSON
Santa Clara
Poli St.
Kalorama St.
Catalina St.
San Jon Barranca
Prince Barranca
Foothill Rd.
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Ralston
Valentine
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Pierpont Blvd.
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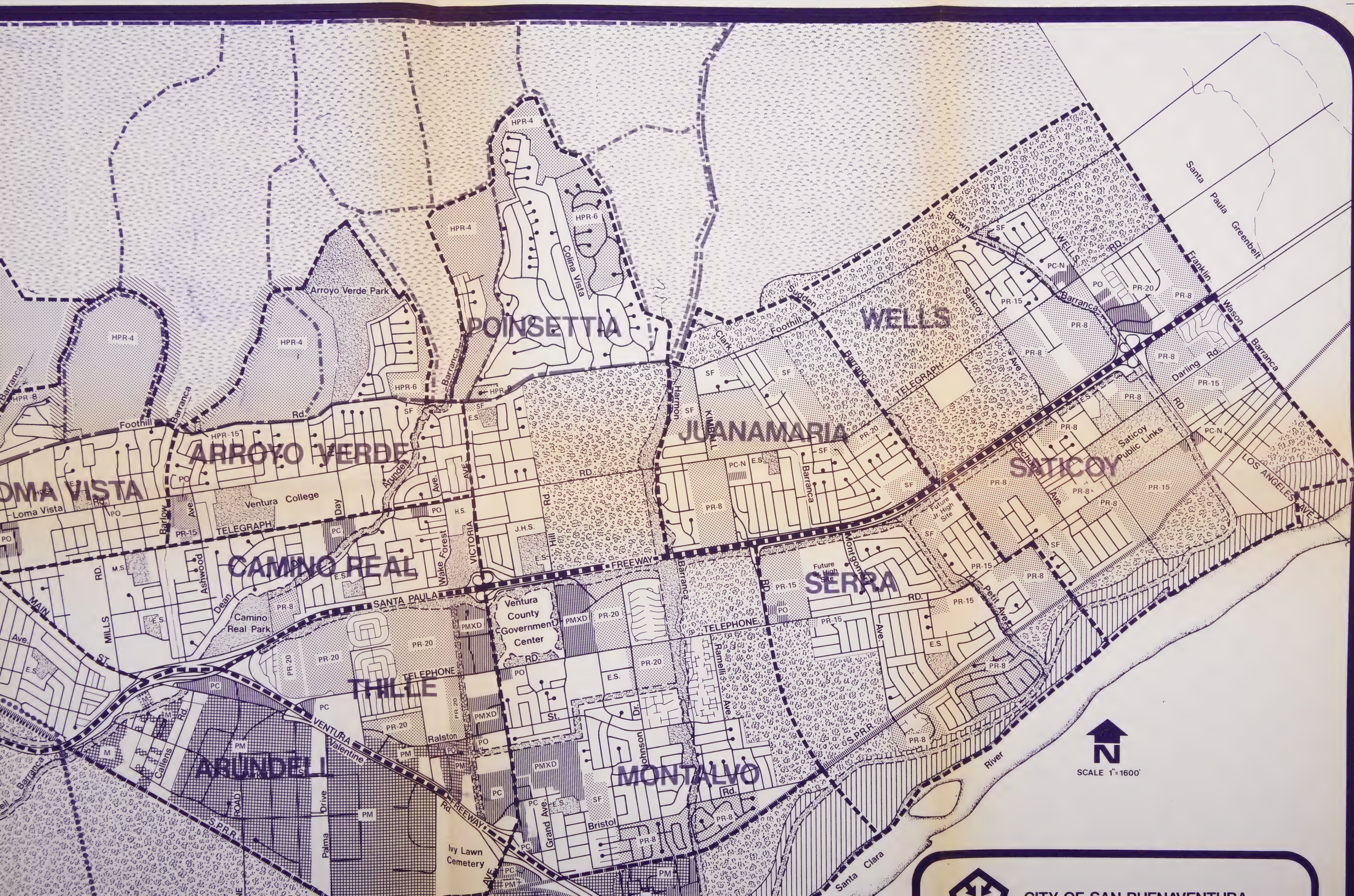
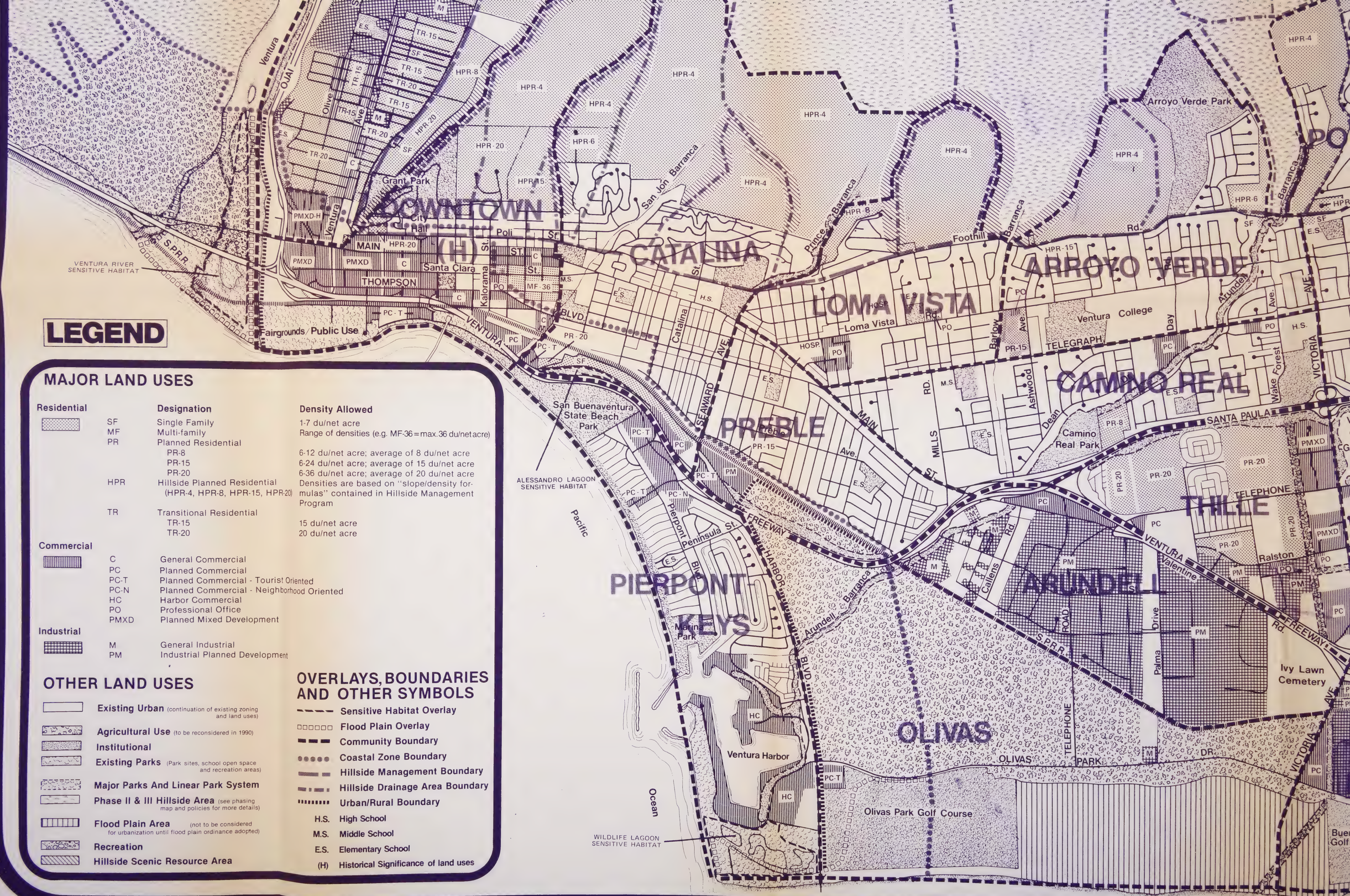
Arundell Barranca
Callens Rd.
Palma Drive
S.P.R.R.
Fairgrounds/Public Use
VENTURA RIVER SENSITIVE HABITAT
ALESSANDRO LAGOON SENSITIVE HABITAT
San Buenaventura State Beach Park
Marina Park
Pacific
LEGEND
MAJOR LAND USES
Residential
Designation
Density Allowed
SF Single Family 1-7 du/net acre
MF Multi-family Range of densities (e.g. MF-36 = max. 36 du/net acre)
PR Planned Residential
PR-8 6-12 du/net acre; average of 8 du/net acre
PR-15 6-24 du/net acre; average of 15 du/net acre
PR-20 6-36 du/net acre; average of 20 du/net acre
HPR Hillside Planned Residential (HPR-4, HPR-8, HPR-15, HPR-20) Densities are based on "slope/density formulas" contained in Hillside Management Program
TR Transitional Residential
TR-15 15 du/net acre
TR-20 20 du/net acre
Commercial
C General Commercial
PC Planned Commercial
PC-T Planned Commercial - Tourist Oriented
PC-N Planned Commercial - Neighborhood Oriented
HC Harbor Commercial
PO Professional Office
PMXD Planned Mixed Development
Industrial
M General Industrial
PM Industrial Planned Development
OTHER LAND USES
OVERLAYS, BOUNDARIES AND OTHER SYMBOLS



CITY OF SAN BUENAVENTURA



LEGEND

MAJOR LAND USES

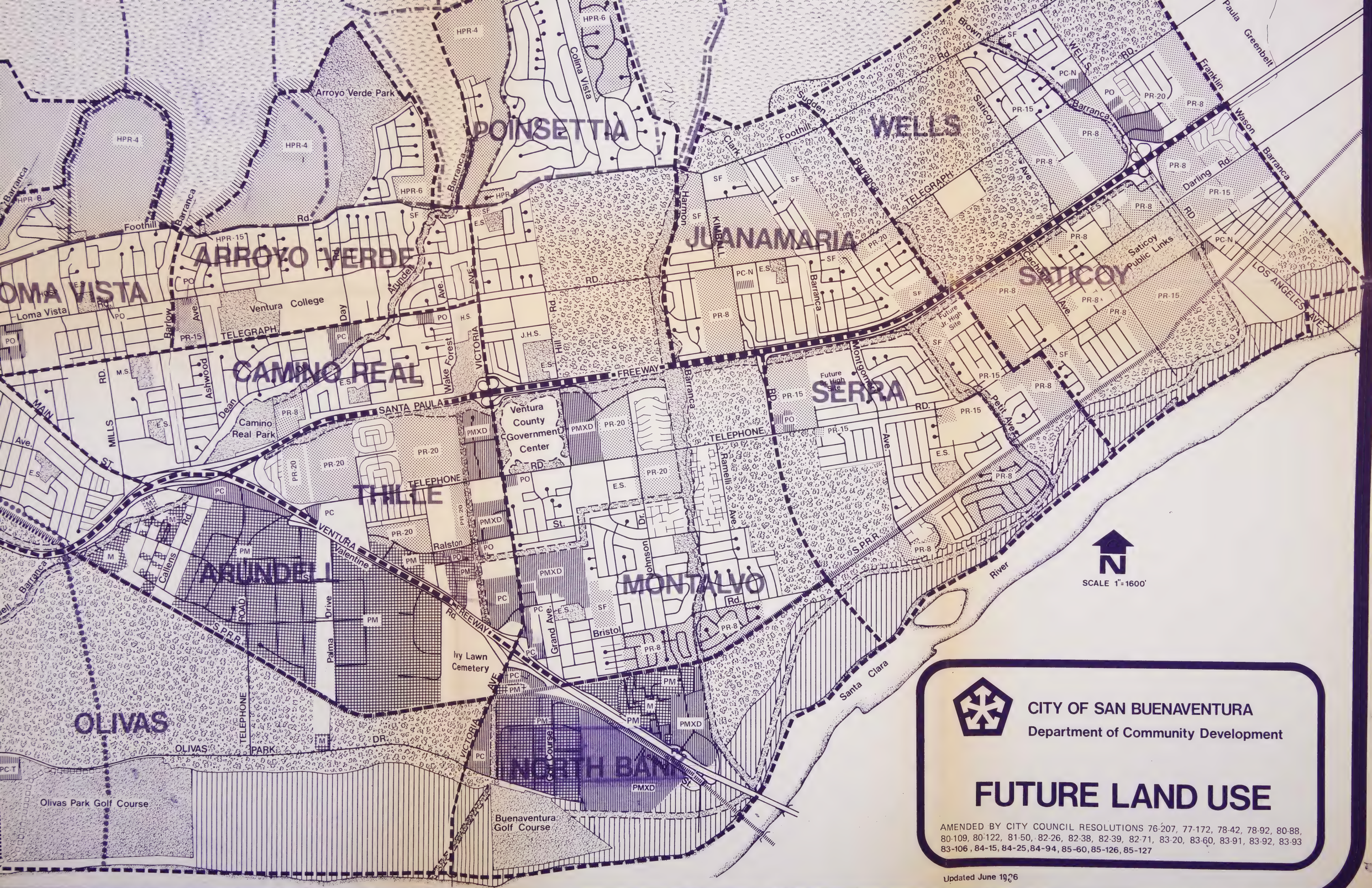
		Designation	Density Allowed
Residential			
	SF	Single Family	1-7 du/net acre
	MF	Multi-family	Range of densities (e.g. MF-36 = max. 36 du/net acre)
	PR	Planned Residential	
		PR-8	6-12 du/net acre; average of 8 du/net acre
		PR-15	6-24 du/net acre; average of 15 du/net acre
		PR-20	6-36 du/net acre; average of 20 du/net acre
	HPR	Hillside Planned Residential (HPR-4, HPR-8, HPR-15, HPR-20)	Densities are based on "slope/density formulas" contained in Hillside Management Program
	TR	Transitional Residential	
		TR-15	15 du/net acre
		TR-20	20 du/net acre
Commercial			
	C	General Commercial	
	PC	Planned Commercial	
	PC-T	Planned Commercial - Tourist Oriented	
	PC-N	Planned Commercial - Neighborhood Oriented	
	HC	Harbor Commercial	
	PO	Professional Office	
	PMXD	Planned Mixed Development	
Industrial			
	M	General Industrial	
	PM	Industrial Planned Development	

OTHER LAND USES

- **Existing Urban** (continuation of existing zoning and land uses)
- **Agricultural Use** (to be reconsidered in 1990)
- **Institutional**
- **Existing Parks** (Park sites, school open space and recreation areas)
- **Major Parks And Linear Park System**
- **Phase II & III Hillside Area** (see phasing map and policies for more details)
- **Flood Plain Area** (not to be considered for urbanization until flood plain ordinance adopted)
- **Recreation**
- **Hillside Scenic Resource Area**

OVERLAYS, BOUNDARIES AND OTHER SYMBOLS

- **Sensitive Habitat Overlay**
- **Flood Plain Overlay**
- **Community Boundary**
- **Coastal Zone Boundary**
- **Hillside Management Boundary**
- **Hillside Drainage Area Boundary**
- **Urban/Rural Boundary**
- H.S. High School
- M.S. Middle School
- E.S. Elementary School
- (H) Historical Significance of land uses



CITY OF SAN BUENAVENTURA
Department of Community Development

FUTURE LAND USE

AMENDED BY CITY COUNCIL RESOLUTIONS 76-207, 77-172, 78-42, 78-92, 80-88, 80-109, 80-122, 81-50, 82-26, 82-38, 82-39, 82-71, 83-20, 83-60, 83-91, 83-92, 83-93 83-106, 84-15, 84-25, 84-94, 85-60, 85-126, 85-127

Updated June 1986

CITY OF SAN BUENAVENTURA

Department of Community Development

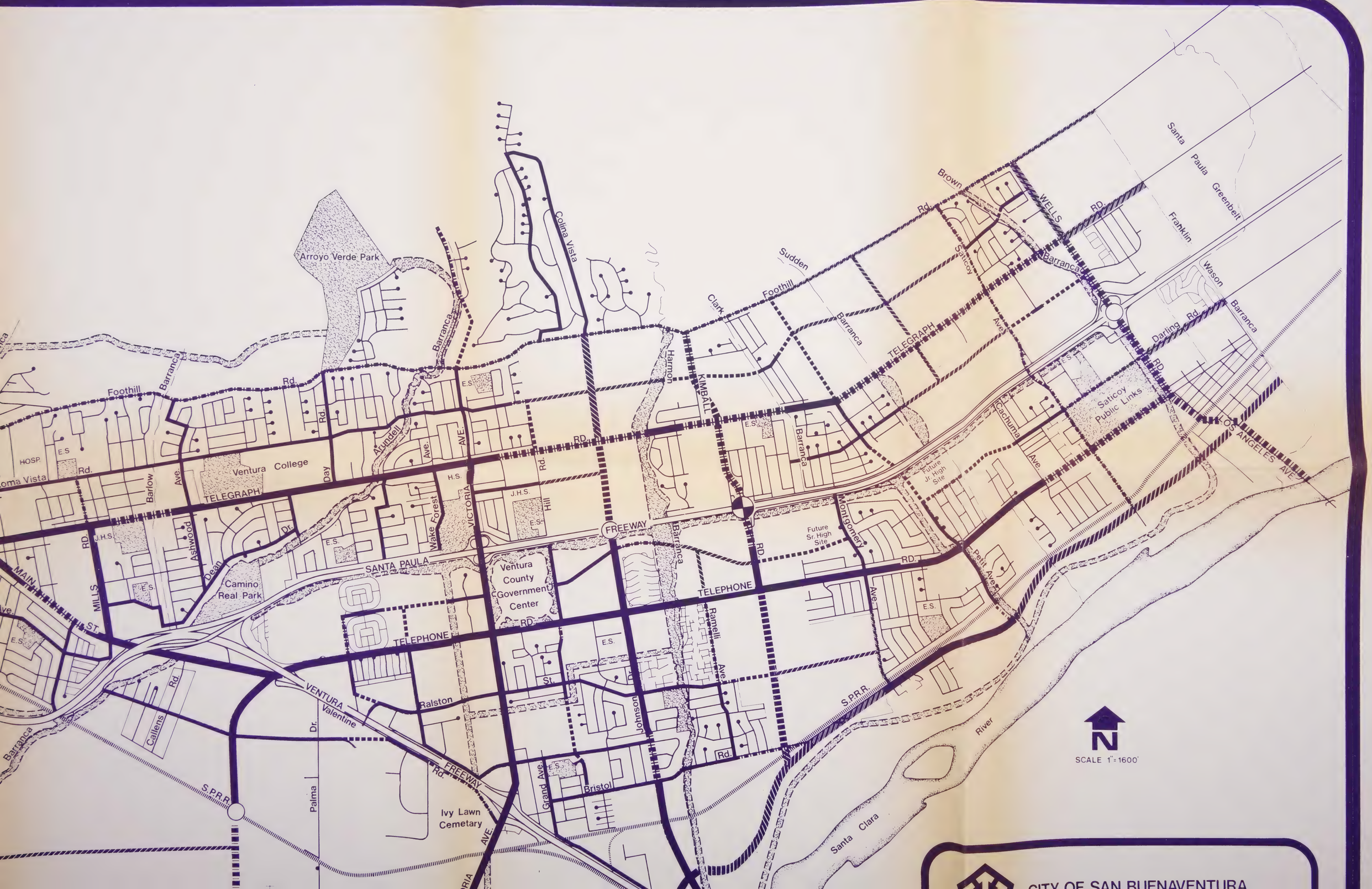
CIRCULATION PLAN

ADOPTED BY THE CITY COUNCIL RESOLUTION NO. 76-207. DECEMBER 6, 1976

Updated June 1986

NOTE: The adopted circulation plan recognizes the 1990 agricultural commitment of the city's adopted open space plan. Also shown is the engineer's suggested long range circulation system which is to be used for dedication and setback purposes but not for land use decisions.


LEGEND
ARTERIAL
COLLECTOR
EXISTING
FUTURE IMPROVEMENTS
(EG. WIDENING, CHANNELIZATION)
CIRCULATION PLAN
ENGINEER'S LONG RANGE SYSTEM
FUTURE EXTENSIONS
CIRCULATION PLAN
ENGINEER'S LONG RANGE SYSTEM
NEW OR RECONSTRUCTED INTERCHANGE
NEW OR RECONSTRUCTED OVER OR UNDERCROSSING
NEW RAMPS
CIRCULATION PLAN
ENGINEER'S LONG RANGE SYSTEM
Dakota Dr.
Stanley Ave.
J.H.S.
E.S.
Ventura
River
OJAI
FREEWAY
Olive
Ave.
Grant Park
City Hall
Ventura
MAIN
Poli
St.
Santa Clara
THOMPSON
Kalorama
St.
J.H.S.
BLVD.
Ventura County Fair Grounds
S.P.R.R.
VENTURA
San Jon
Barranca
Catalina
St.
H.S.
Prince
Barranca
Foothill
Barranca
Rd.
Arroyo Verde Park
Barranca
HOSP.
Loma Vista
Rd.
Barlow
Ave.
Ashwood
Dean
Dr.
Ventura College
TELEGRAPH
Day
Rd.
Arundell
Ave.
Wake Forest
VICTORIA
AVE.
SANTA PAULA
Camino Real Park
San Buenaventura State Beach Park
SEAWARD
AVE.
Preble
Ave.
MAIN
ST.
MILLS
RD.
Pacific
Pierpont
Blvd
Peninsula
St.
FREEWAY
HARBOR
Marina Park
Arundell
Barranca
BLVD.
Callens
Rd.
TELEPHONE
VENTURA
Valentine
Ralston
Dr.
Palma
S.P.R.R.
FREEWAY
Rd.
Ivy Lawn Cemetary
AVE.



CITY OF SAN BUENAVENTURA

LEGEND

	ARTERIAL	COLLECTOR
EXISTING		
FUTURE IMPROVEMENTS (EG. WIDENING, CHANNELIZATION)		
CIRCULATION PLAN		
ENGINEER'S LONG RANGE SYSTEM		
FUTURE EXTENSIONS		
CIRCULATION PLAN		
ENGINEER'S LONG RANGE SYSTEM		

	NEW OR RECONSTRUCTED INTERCHANGE	NEW OR RECONSTRUCTED OVER OR UNDERCROSSING	NEW RAMPS
CIRCULATION PLAN			
ENGINEER'S LONG RANGE SYSTEM			

AGRICULTURAL USE (TO BE RECONSIDERED AFTER 1990)

MAJOR PARKS AND LINEAR PARK SYSTEM

NOTE: The adopted circulation plan recognizes the 1990 agricultural commitment of the city's adopted open space plan. Also shown is the engineer's suggested long range circulation system which is to be used for dedication and setback purposes but not for land use decisions.

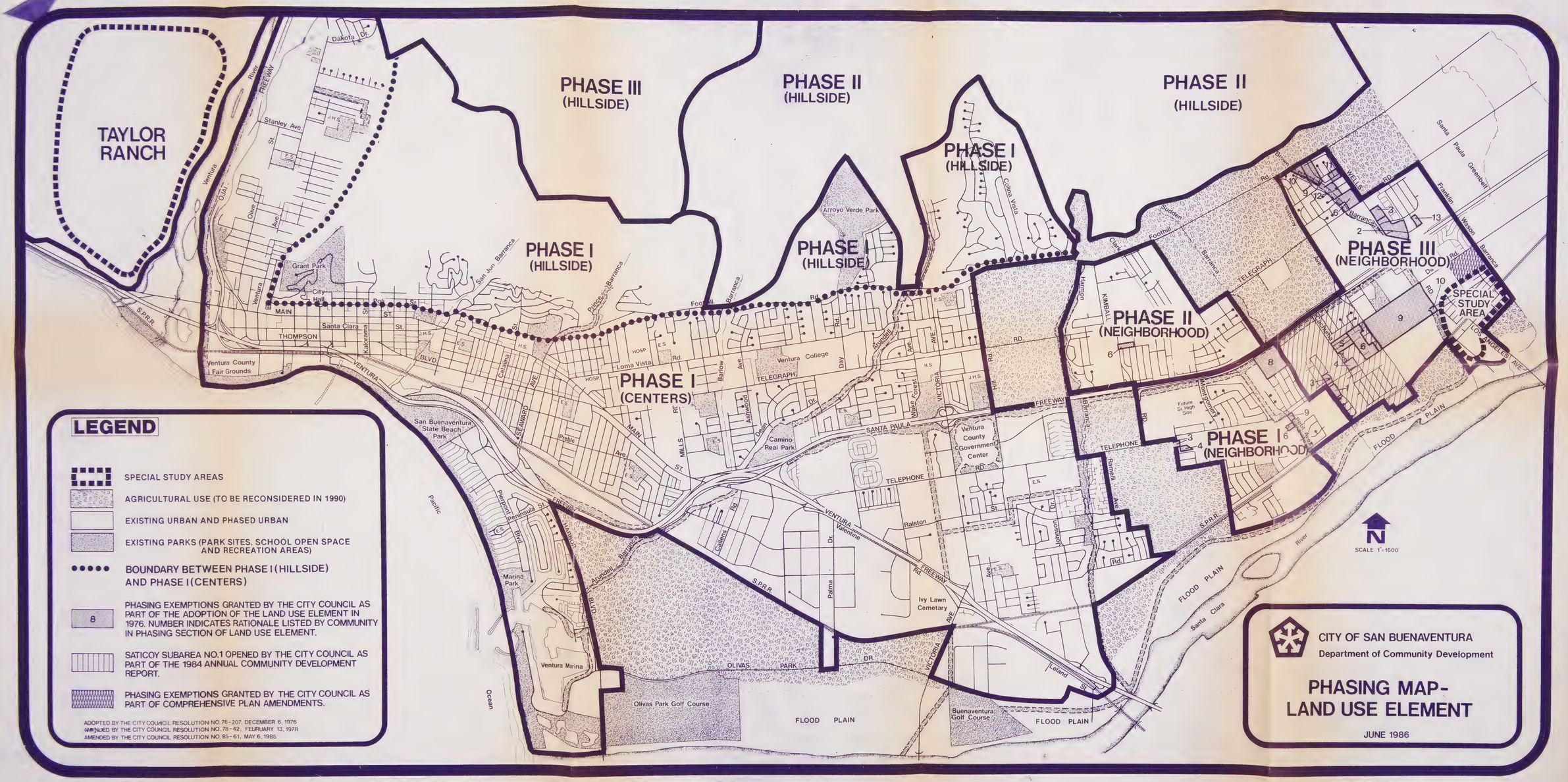
CITY OF SAN BUENAVENTURA

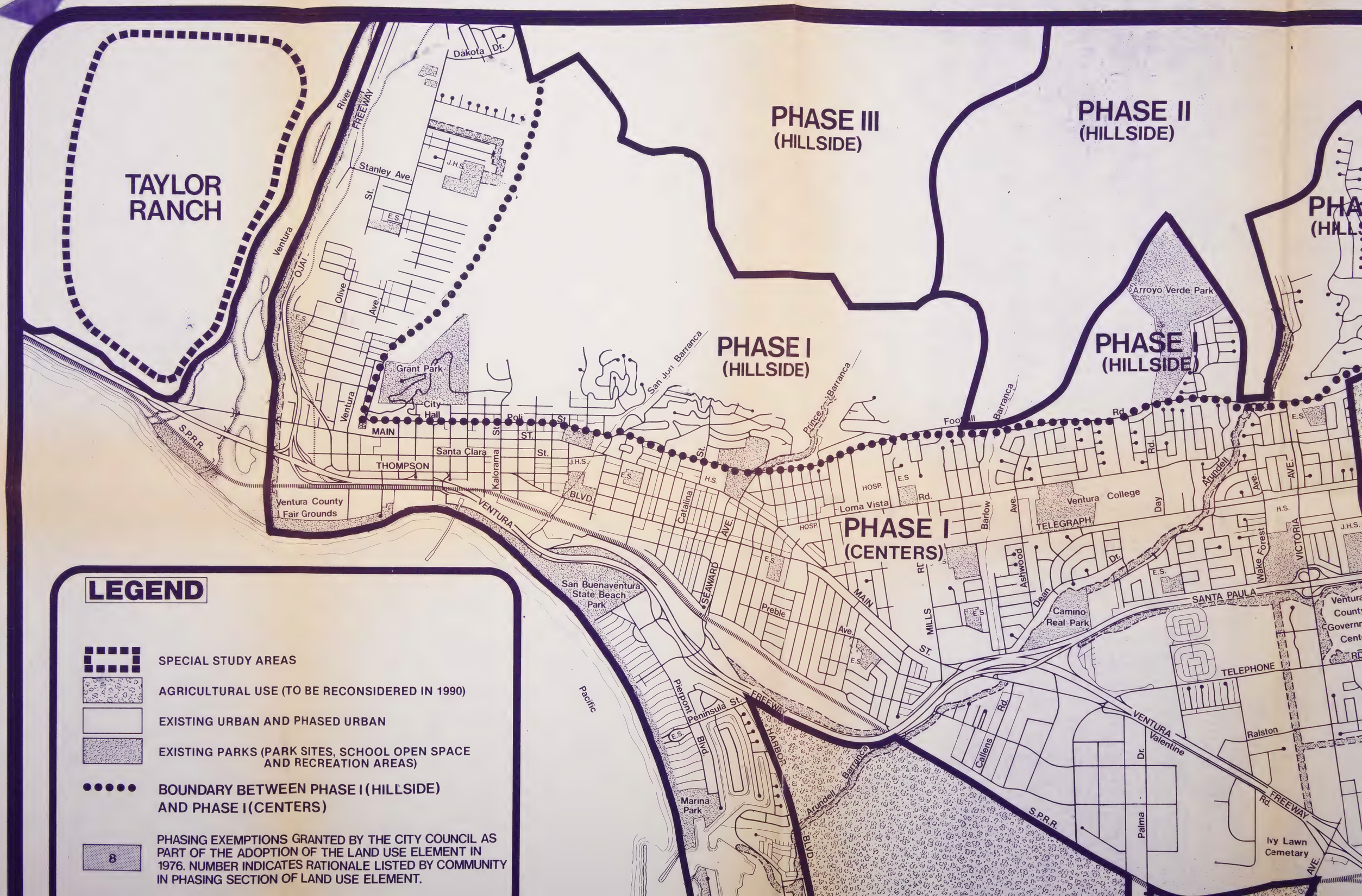
Department of Community Development

CIRCULATION PLAN

ADOPTED BY THE CITY COUNCIL RESOLUTION NO. 76-207, DECEMBER 6, 1976

Updated June 1986


TAYLOR RANCH
PHASE III (HILLSIDE)
PHASE II (HILLSIDE)
PHASE II (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (HILLSIDE)
PHASE I (CENTERS)
PHASE II (NEIGHBORHOOD)
PHASE III (NEIGHBORHOOD)
PHASE I (NEIGHBORHOOD)
SPECIAL STUDY AREA
FLOOD PLAIN
Ventura County Fair Grounds
San Buenaventura State Beach Park
Ventura Marina
Olivas Park Golf Course
Buenaventura Golf Course
Ivy Lawn Cemetery
Ventura County Government Center
Ventura College
Camino Real Park
Arroyo Verde Park
Future Sr. High Site
Santa Clara River
Pacific Ocean
LEGEND
SPECIAL STUDY AREAS
AGRICULTURAL USE (TO BE RECONSIDERED IN 1990)
EXISTING URBAN AND PHASED URBAN
EXISTING PARKS (PARK SITES, SCHOOL OPEN SPACE AND RECREATION AREAS)
BOUNDARY BETWEEN PHASE I (HILLSIDE) AND PHASE I (CENTERS)
8
PHASING EXEMPTIONS GRANTED BY THE CITY COUNCIL AS PART OF THE ADOPTION OF THE LAND USE ELEMENT IN 1976. NUMBER INDICATES RATIONALE LISTED BY COMMUNITY IN PHASING SECTION OF LAND USE ELEMENT.
SATICOY SUBAREA NO.1 OPENED BY THE CITY COUNCIL AS PART OF THE 1984 ANNUAL COMMUNITY DEVELOPMENT REPORT.
PHASING EXEMPTIONS GRANTED BY THE CITY COUNCIL AS PART OF COMPREHENSIVE PLAN AMENDMENTS.
ADOPTED BY THE CITY COUNCIL RESOLUTION NO.76-207, DECEMBER 6, 1976
AMENDED BY THE CITY COUNCIL RESOLUTION NO. 78-42, FEBRUARY 13, 1978
AMENDED BY THE CITY COUNCIL RESOLUTION NO.85-61, MAY 6, 1985
N
SCALE 1"=1600'
CITY OF SAN BUENAVENTURA
Department of Community Development
PHASING MAP-
LAND USE ELEMENT
JUNE 1986


TAYLOR RANCH
PHASE III (HILLSIDE)
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PHASE I (HILLSIDE)
PHASE I (HILLSIDE)
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Dakota Dr.
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LEGEND
SPECIAL STUDY AREAS
AGRICULTURAL USE (TO BE RECONSIDERED IN 1990)
EXISTING URBAN AND PHASED URBAN
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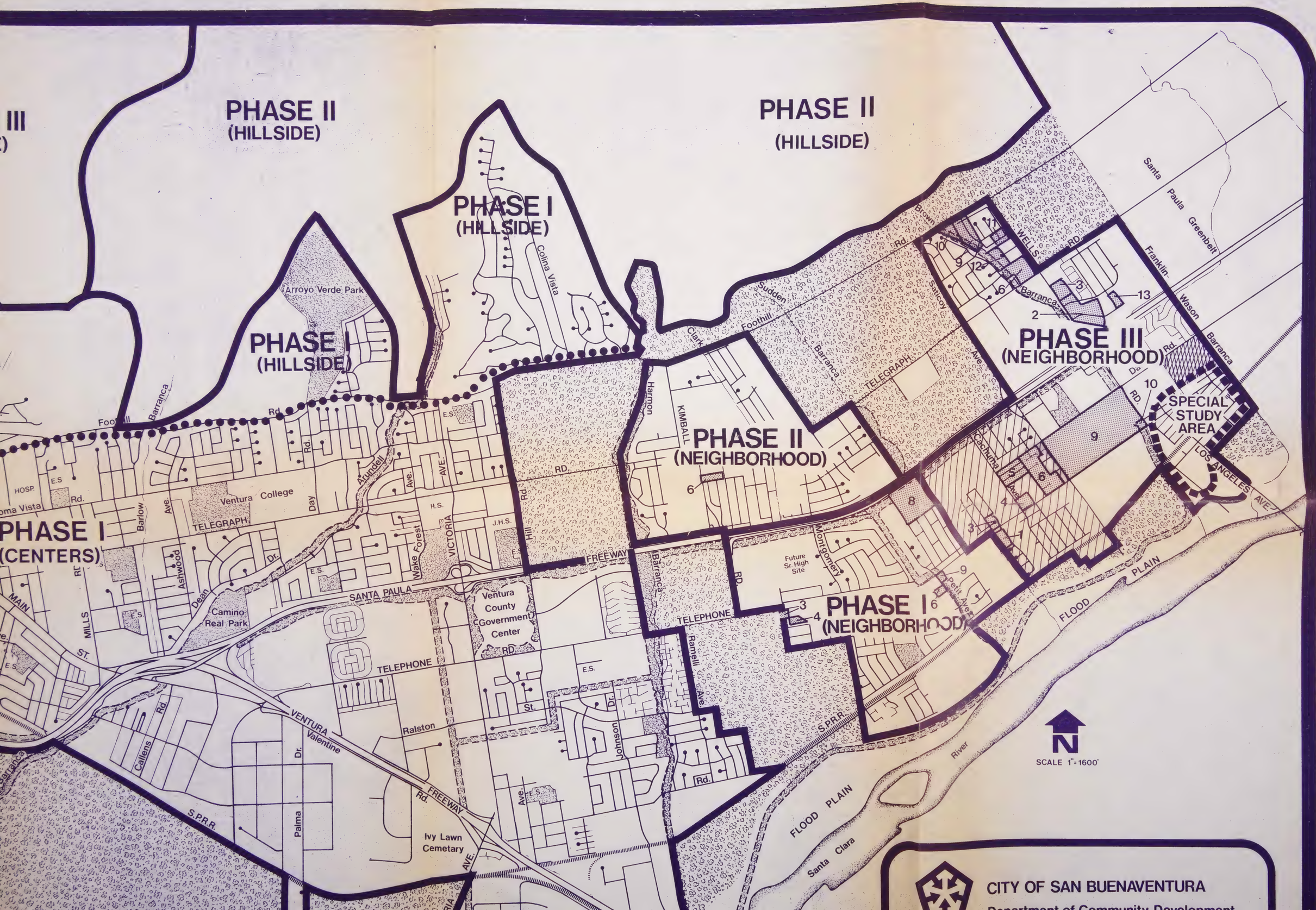
PHASE II
(HILLSIDE)
PHASE II
(HILLSIDE)
PHASE I
(HILLSIDE)
PHASE I
(HILLSIDE)
PHASE I
(CENTERS)
PHASE II
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SPECIAL STUDY AREA
Arroyo Verde Park
Colina Vista
Foothill
Barranca
Rd.
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S.P.R.R.
Ivy Lawn Cemetary
Harmon
KIMBALL
Clark
Sudden
Brown
Saticoy
Wells
Hill
Future Sr. High Site
Montgomery
Ramelli
Johnson
Petit
Cachuma
Franklin
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Santa Paula Greenbelt
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SCALE 1"=1600'
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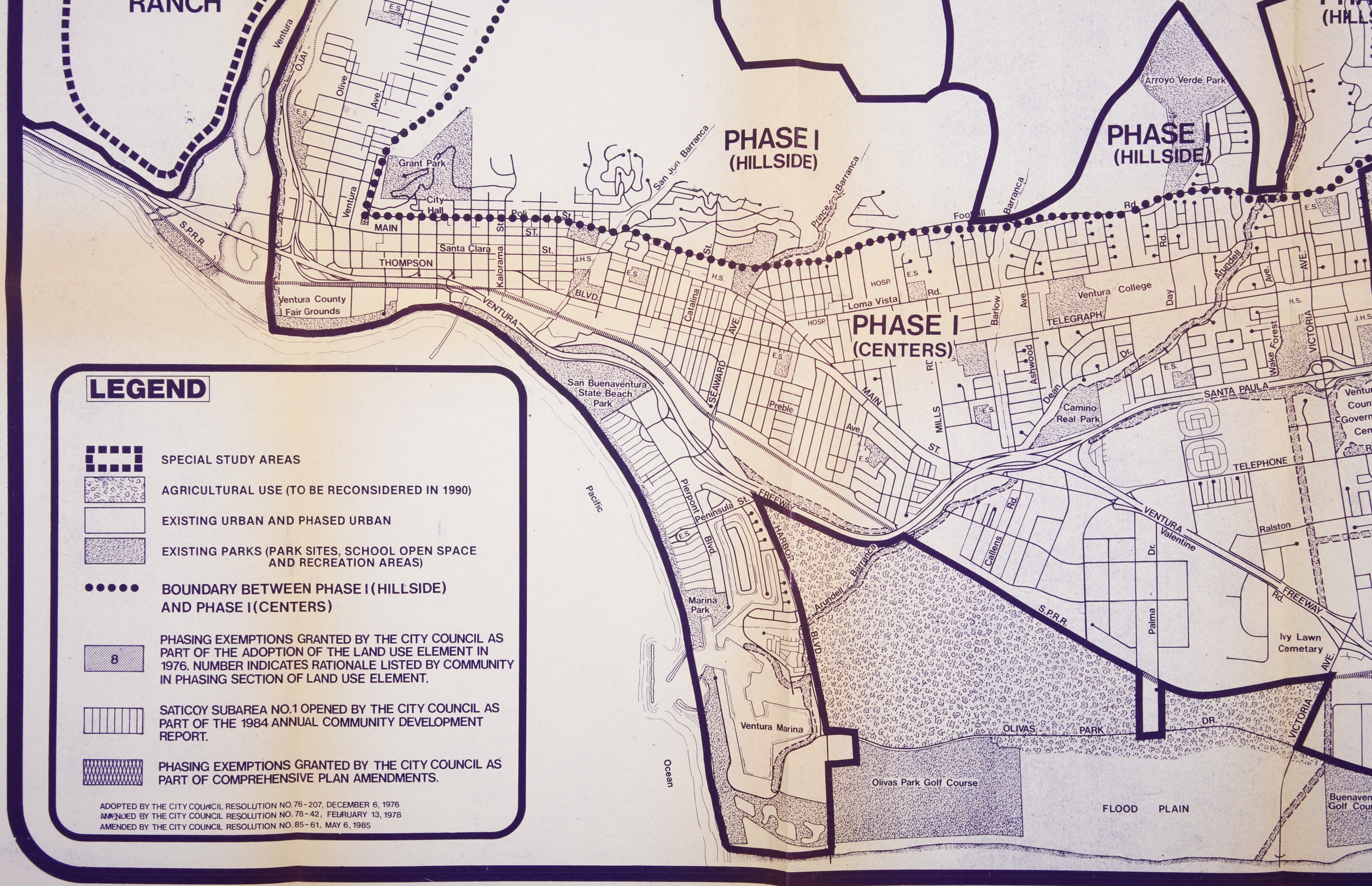
CITY OF SAN BUENAVENTURA
Department of Community Development



LEGEND

- SPECIAL STUDY AREAS
- AGRICULTURAL USE (TO BE RECONSIDERED IN 1990)
- EXISTING URBAN AND PHASED URBAN
- EXISTING PARKS (PARK SITES, SCHOOL OPEN SPACE AND RECREATION AREAS)
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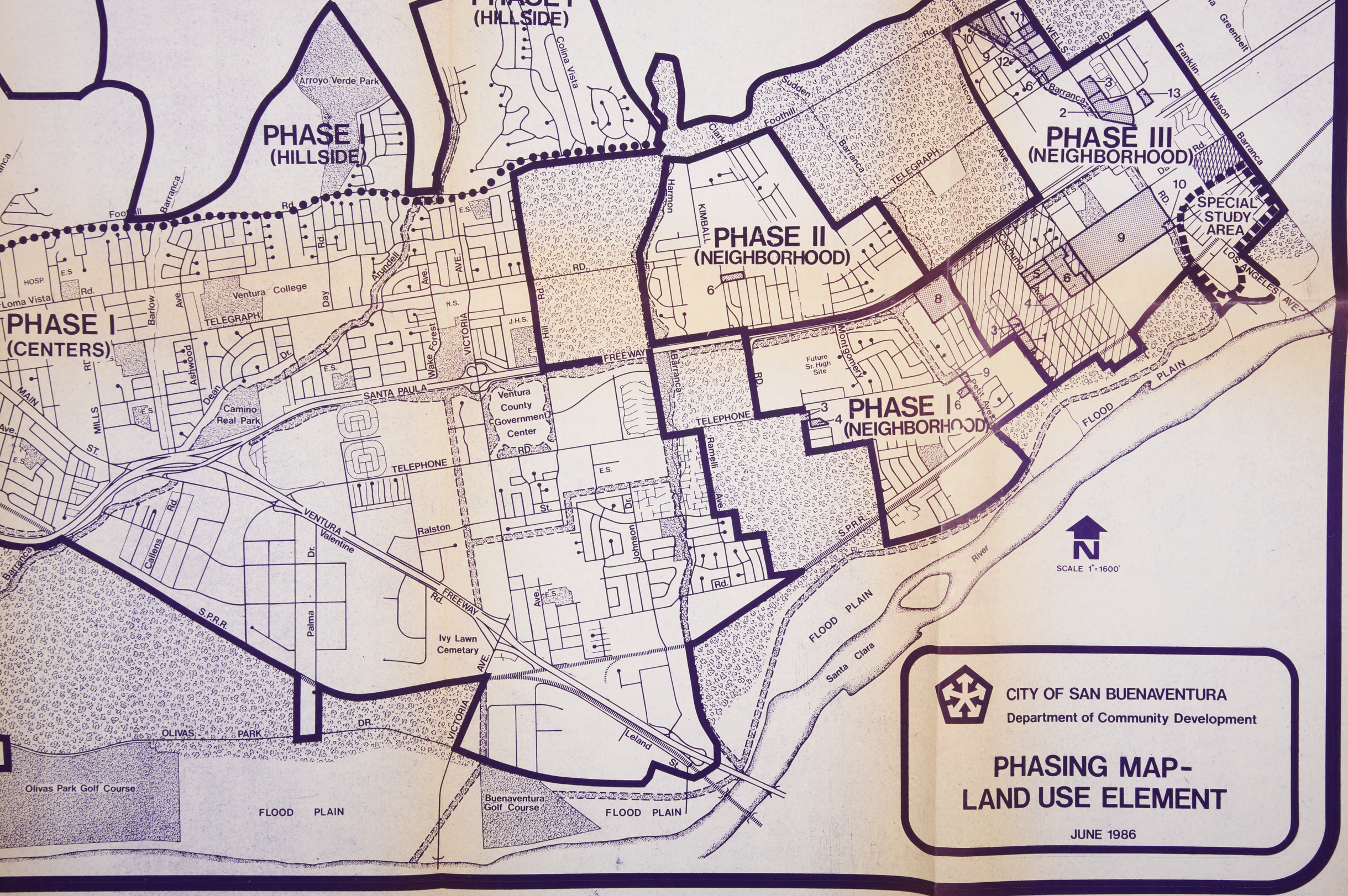
AMENDED BY THE CITY COUNCIL RESOLUTION NO. 78-42, FEBRUARY 13, 1978
AMENDED BY THE CITY COUNCIL RESOLUTION NO. 85-61, MAY 6, 1985


PHASE I
(CENTERS)
PHASE I
(HILLSIDE)
PHASE I
(HILLSIDE)
PHASE II
(NEIGHBORHOOD)
PHASE III
(NEIGHBORHOOD)
PHASE I
(NEIGHBORHOOD)
SPECIAL STUDY AREA
Arroyo Verde Park
Ventura College
Camino Real Park
Ventura County Government Center
Future Sr. High Site
Ivy Lawn Cemetary
Olivas Park Golf Course
Buenaventura Golf Course
FLOOD PLAIN
FLOOD PLAIN
FLOOD PLAIN
Santa Clara River
Greenbelt
SCALE 1" = 1600'
N
CITY OF SAN BUENAVENTURA
Department of Community Development
PHASING MAP-
LAND USE ELEMENT
JUNE 1986